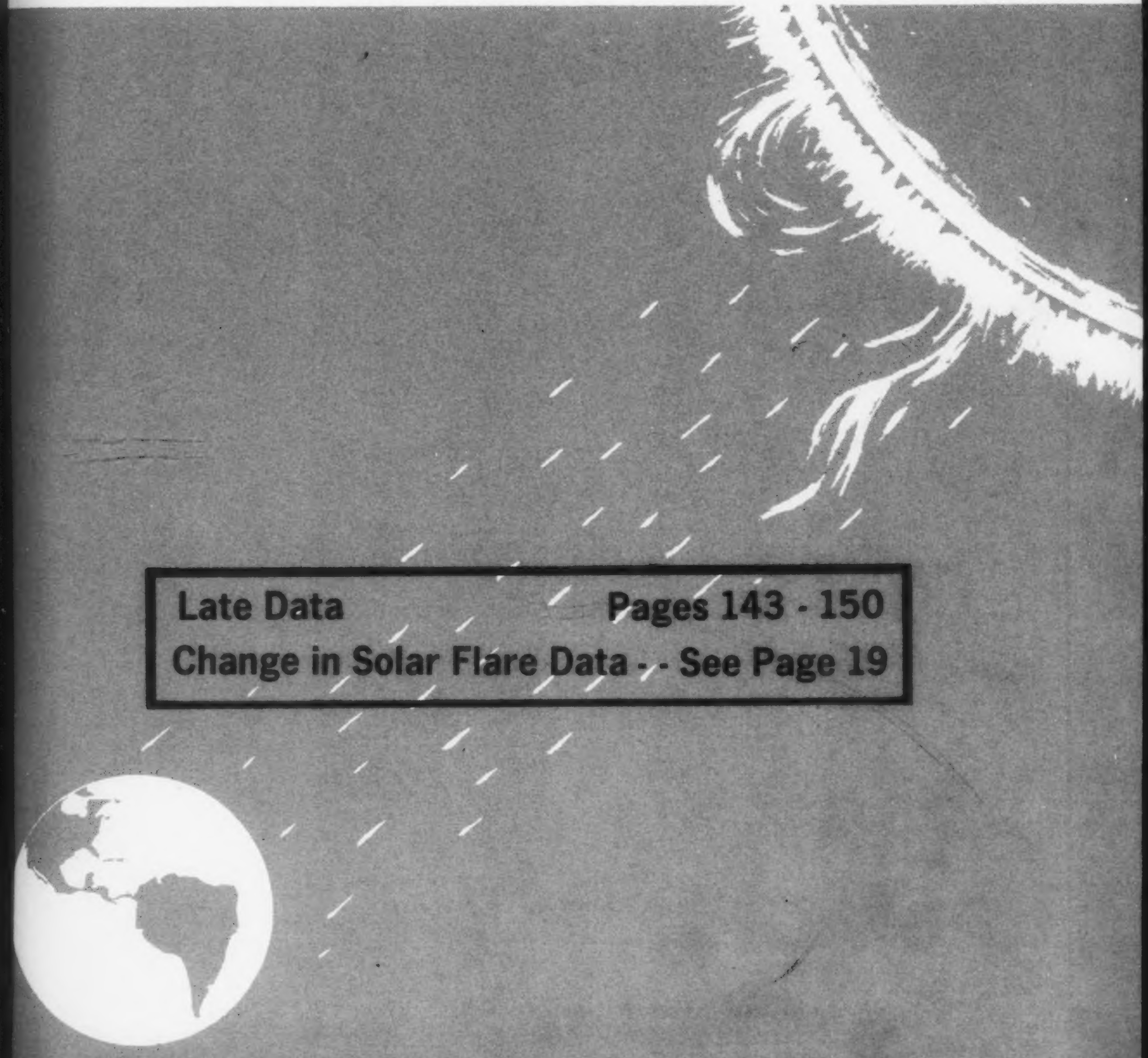
JUNE 1982 NUMBER 454 - Part 1

DEPARTMENT OF COMMERCE
JUL 28 198
UNITED STATES OF AMERICA

Solar-Geophysical Data prompt reports

Data for May 1982, April 1982 & Late Data

Explanation of Data Reports Issued as Number 450 (Supplement) February 1982



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Change in Solar Flare Data **- - See Page 19**

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U.S. DEPARTMENT OF COMMERCE
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Solar - Geophysical Data

Part I (Prompt Reports)

NO. 454 JUNE 1982

DATA FOR
MAY 1982
APRIL 1982

NATIONAL GEOPHYSICAL DATA CENTER

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Solar-Geophysical Data, 450 Part I (or Part II), pages, February 1982, U.S. Department of Commerce (Boulder, Colorado, U.S.A. 80303).

SOLAR-GEOPHYSICAL DATA

No. 454

Issued in two parts

Helen E. Coffey, Editor

Joe H. Allen, Chief
Solar-Terrestrial Physics Division

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D.1f	Sudden Commencement and Solar Flare Effects		443A148	445A180	445A164	446A138	447A155	448A153	449A163	450A142	451A160	452A157	453A142		
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F.1h	Cosmic Ray Neutron Counts (Thule)		443A141	444A141	445A157	446A134	447A151	448A149	449A158	450A134	451A151	452A151	453A135	454A131	
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Notes:

"441A 58" listed under 1981 Mar means that the sunspot drawings for Mar 1981 were contained in *Solar-Geophysical Data* Number 441 - Part I, beginning on page 58.

A = Part I, B = Part II.

----- = no data available.
blank = data not yet received.

MAY 1982 DATA

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ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

MAY 1982

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
121	01	30	136	149	029	N18W87	2	0	0		01	N18W87	Q	SOLQUIET
						N12W80	0	0	0			N12W80	E	MAGQUIET
						N06W79	0	0	0			N06W79	Q	
						N13W74	0	0	0			N13W74	Q	
						S12W68	1	0	0			S12W68	Q	
						N23W56	2	0	0			N23W56	Q	
						S14W22	0	0	0			S14W22	Q	
						N16W16	0	0	0			N16W16	Q	
						S18E20	7	0	0			S18E20	Q	
122	02	01	122	149	021	N11W92	0	0	0		02	N11W92	Q	SOLQUIET
						N05W92	0	0	0			N05W92	Q	MAGQUIET
						N14W88	1	0	0			N14W88	Q	
						S13W81	1	0	0			S13W81	Q	
						N23W74	0	0	0			N23W74	Q	
						S14W36	1	0	0			S14W36	Q	
						N16W28	0	0	0			N16W28	Q	
						S18E06	6	0	0			S18E06	Q	
						S06E76	0	0	0			S06E76	Q	
123	03	02	086	145	024	N23W88	0	0	0		03	N23W88	Q	SOLQUIET
						S15W48	0	0	0			S15W48	Q	MAGQUIET
						N15W41	0	0	0			N15W41	Q	
						S15W07	4	0	0			S15W07	E	
						S06E64	2	1	0			S06E64	Q	
124	04	03	110	145	033	N16W56	0	0	0		04	N16W56	Q	SOLQUIET
						S18W20	5	0	0			S18W20	Q	MAGQUIET
						S16E30	0	0	0			S16E30	Q	
						S06E50	6	0	0			S06E50	Q	
						S12E75	5	0	0			S12E75	Q	
						N13E84	0	0	0			N13E84	Q	
125	05	04	079	142	019	S18W32	0	0	0		05	S18W32	E	SOLQUIET
						S05E36	2	1	0			S05E36	E	MAGQUIET
						S21E62	2	0	0			S21E62	E	
						N14E68	0	0	0			N14E68	Q	
126	06	05	104	146	017	S18W46	0	0	0		06	S18W46	Q	SOLQUIET
						S16E04	0	0	0			S16E04	Q	MAGQUIET
						S05E24	2	0	0			S05E24	E	
						S21E49	0	0	0			S21E49	E	
						N13E55	0	0	0			N13E55	Q	
						S07E74	0	0	0			S07E74	Q	
127	07	06	137	150	008	S18W58	0	0	0		07	S18W58	Q	SOLQUIET
						S15W11	0	0	0			S15W11	Q	MAGQUIET
						S05E10	5	0	0			S05E10	E	
						S10E27	0	0	0			S10E27	Q	
						S21E30	0	0	0			S21E30	Q	
						N13E42	0	0	0			N13E42	Q	
						S08E59	0	0	0			S08E59	Q	
						N14E72	0	0	0			N14E72	Q	
128	08	07	130	148	007	S18W72	0	0	0		08	S18W72	Q	SOLQUIET
						S05W04	2	0	0			S05W04	E	MAGQUIET
						S22E20	0	0	0			S22E20	Q	
						S21E26	0	0	0			S21E26	Q	
						N13E29	0	0	0			N13E29	Q	
						S07E45	0	0	0			S07E45	Q	
						N16E57	0	0	0			N16E57	Q	
129	09	08	156	148	006	S15W85	0	0	0		09	S15W85	Q	SOLQUIET
						S05W17	2	0	0			S05W17	E	MAGQUIET
						S04E02	0	0	0			S04E02	Q	
						S20E09	0	0	0			S20E09	Q	
						S22E13	0	0	0			S22E13	Q	
						N14E16	0	0	0			N14E16	Q	
						S45E17	0	0	0			S45E17	Q	
						S07E30	0	0	0			S07E30	Q	
						N15E44	0	0	0			N15E44	Q	
130	10	09	081	137	011	S05W30	2	0	0		10	S05W30	E	SOLQUIET
						S22E01	0	0	0			S22E01	Q	MAGQUIET
						N14E03	0	0	0			N14E03	Q	
						S07E16	0	0	0			S07E16	Q	
131	11	10	115	128	007	S04W44	3	0	0		11	S04W44	E	SOLQUIET
						S12W13	0	0	0			S12W13	W	MAGQUIET
						N14W11	0	0	0			N14W11	Q	
						S08W10	0	0	0			S08W10	Q	
						N20E02	0	0	0			N20E02	Q	
						S08E02	0	0	0			S08E02	Q	
						N05E74	0	0	0			N05E74	Q	
132	12	11	095	130	010	S05W58	2	0	0		12	S05W58	E	SOLQUIET
						S09W25	0	0	0			S09W25	Q	MAGQUIET
						N14W24	0	0	0			N14W24	Q	
						S07W13	0	0	0			S07W13	Q	
						N05E60	0	0	0			N05E60	Q	
						S03E79	0	0	0			S03E79	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

MAY 1982

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions: Location Lat-Long	No. of Flares: Total	M	X	Outstanding events	Forecasts: Date	Location Lat-Long	Desc*	Alert Situations
133	13	12	108	130	008	S05W72	4	1	0		13	S05W72	E	SOLQUIET
						S07W51	1	0	0			S07W51	Q	MAGQUIET
						N13W38	0	0	0			N13W38	Q	
						S08W26	1	0	0			S08W26	Q	
						S05W02	0	0	0			S05W02	Q	
						N05E47	0	0	0			N05E47	Q	
						S17E60	0	0	0			S17E60	Q	
						S03E65	1	0	0			S03E65	Q	
134	14	13	136	127	008	S04W88	-0	0	0		14	S04W88	E	SOLQUIET
						S07W67	0	0	0			S07W67	Q	MAGQUIET
						S18W62	0	0	0			S18W62	Q	
						N15W50	0	0	0			N15W50	Q	
						S08W36	0	0	0			S08W36	Q	
						S05W17	0	0	0			S05W17	Q	
						N04E34	0	0	0			N04E34	Q	
						S19E47	1	0	0			S19E47	Q	
						S03E53	1	0	0			S03E53	Q	
						N08E64	0	0	0			N08E64	Q	
						S27E66	0	0	0			S27E66	Q	
135	15	14	115	129	011	S07W79	0	0	0		15	S07W79	Q	SOLQUIET
						S18W76	0	0	0			S18W76	Q	MAGQUIET
						N14W63	0	0	0			N14W63	Q	
						S02E21	0	0	0			S02E21	Q	
						S18E33	0	0	0			S18E33	Q	
						S04E39	0	0	0			S04E39	Q	
						N08E51	0	0	0			N08E51	Q	
						S26E53	0	0	0			S26E53	Q	
						S13E72	0	0	0			S13E72	Q	
136	16	15	082	129	016	N15W76	0	0	0		16	N15W76	Q	SOLQUIET
						N04E08	0	0	0			N04E08	Q	MAGQUIET
						S14E17	0	0	0			S14E17	Q	
						S19E21	0	0	0			S19E21	Q	
						S03E26	0	0	0			S03E26	Q	
						S11E61	0	0	0			S11E61	Q	
137	17	16	117	136	014	N14W90	1	0	0		17	N14W90	Q	SOLQUIET
						N03W05	2	0	0			N03W05	Q	MAGQUIET
						S14E02	2	0	0			S14E02	E	
						S18E06	0	0	0			S18E06	Q	
						S03E12	0	0	0			S03E12	Q	
						S11E47	0	0	0			S11E47	Q	
						N14E74	0	0	0			N14E74	Q	
						N24E76	0	0	0			N24E76	Q	
138	18	17	135	142	014	N03W20	0	0	0		18	N03W20	Q	SOLQUIET
						S13W12	2	0	0			S13W12	E	MAGQUIET
						S18W07	1	0	0			S18W07	Q	
						S03W01	0	0	0			S03W01	Q	
						S13E34	1	0	0			S13E34	Q	
						N13E63	0	0	0			N13E63	Q	
						N23E64	1	0	0			N23E64	Q	
						S12E68	0	0	0			S12E68	Q	
						N24E77	0	0	0			N24E77	Q	
139	19	18	140	143	022	N04W33	0	0	0		19	N04W33	Q	SOLQUIET
						S12W26	1	0	0			S12W26	Q	MAGQUIET
						S18W22	0	0	0			S18W22	Q	
						S02W15	0	0	0			S02W15	Q	
						S23W01	0	0	0			S23W01	Q	
						N14E49	0	0	0			N14E49	Q	
						N22E49	7	1	0			N22E49	Q	
						S12E56	1	0	0			S12E56	Q	
						N24E62	4	0	0			N24E62	Q	
						N24E70	0	0	0			N24E70	Q	
140	20	19	175	152	015	N04W48	0	0	0		20	N04W48	Q	SOLQUIET
						S13W40	2	0	0			S13W40	Q	MAGQUIET
						S17W36	0	0	0			S17W36	Q	
						S02W29	0	0	0			S02W29	Q	
						S08W24	0	0	0			S08W24	Q	
						N17E12	0	0	0			N17E12	Q	
						N21E34	9	0	0			N21E34	E	
						N13E35	0	0	0			N13E35	Q	
						S12E42	0	0	0			S12E42	Q	
						N23E47	2	0	0			N23E47	Q	
						N24E57	0	0	0			N24E57	Q	
141	21	20	163	155	009	N04W60	0	0	0	Presto Soflare	21	N04W60	Q	SOLALERT 21/22
						S15W53	0	0	0	M4/2B N20E25		S15W53	Q	MAGQUIET
						S17W48	0	0	0	20/1410Z Duration		S17W48	Q	
						S02W42	0	0	0	30 Minutes		S02W42	Q	
						N18E00	1	0	0			N18E00	Q	
						N21E22	7	1	0			N21E22	A	
						N14E23	2	0	0			N14E23	Q	
						N23E31	1	0	0			N23E31	Q	
						S12E31	0	0	0			S12E31	Q	
						N23E45	0	0	0			N23E45	Q	

ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

MAY 1982

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions Location Lat-Long	No. of Flares Total	M	X	Outstanding events	Forecasts Date	Location Lat-Long	Desc*	Alert Situations
142	22	21	205	165	010	N04W73	0	0	0		22	N04W73	Q	SOLALERT 22/XX
						S14W65	0	0	0			S14W65	Q	MAGQUIET
						S19W63	0	0	0			S19W63	Q	
						S02W54	0	0	0			S02W54	Q	
						N18W14	0	0	0			N18W14	Q	
						N13E09	0	0	0			N13E09	Q	
						N20E09	11	2	0			N20E09	A	
						S12E16	0	0	0			S12E16	Q	
						N22E17	1	0	0			N22E17	Q	
						N24E29	1	0	0			N24E29	Q	
						S23E49	2	0	0			S23E49	Q	
						S21E62	1	0	0			S21E62	Q	
143	23	22	213	155	005	N03W87	0	0	0		23	N03W87	Q	SOLALERT 23/XX
						S14W82	0	0	0			S14W82	Q	MAGQUIET
						S03W68	0	0	0			S03W68	Q	
						N18W28	0	0	0			N18W28	Q	
						S21W28	0	0	0			S21W28	Q	
						N20W05	5	3	0			N20W05	A	
						N13W03	0	0	0			N13W03	Q	
						N22E06	0	0	0			N22E06	Q	
						N24E19	1	0	0			N24E19	Q	
						S23E36	0	0	0			S23E36	Q	
						S20E52	0	0	0			S20E52	Q	
144	24	23	172	155	005	S02W82	0	0	0		24	S02W82	Q	SOLALERT
						S21W41	1	0	0			S21W41	Q	MAGQUIET
						N20W17	7	2	0			N20W17	A	
						N13W16	0	0	0			N13W16	Q	
						S11W15	0	0	0			S11W15	Q	
						N24E08	3	0	0			N24E08	Q	
						S24E22	0	0	0			S24E22	Q	
						S20E38	0	0	0			S20E38	Q	
						S16E74	0	0	0			S16E74	Q	
145	25	24	150	147	005	S20W55	0	0	0		25	S20W55	Q	SOLNIL
						N21W30	1	0	0			N21W30	A	MAGQUIET
						N15W28	3	0	0			N15W28	Q	
						S12W27	0	0	0			S12W27	Q	
						N24E06	0	0	0			N24E06	Q	
						S23E12	0	0	0			S23E12	Q	
						S20E24	0	0	0			S20E24	Q	
						S15E60	0	0	0			S15E60	Q	
146	26	25	165	142	007	N22W45	8	0	0		26	N22W45	A	SOLQUIET
						N16W42	5	0	0			N16W42	E	MAGQUIET
						S10W41	0	0	0			S10W41	Q	
						N23W32	0	0	0			N23W32	Q	
						N27W22	0	0	0			N27W22	Q	
						S19W17	3	0	0			S19W17	Q	
						S19E09	4	0	0			S19E09	Q	
						S15E47	0	0	0			S15E47	Q	
						S15E69	2	0	0			S15E69	Q	
147	27	26	178	154	019	N22W58	8	0	0		27	N22W58	E	SOLQUIET
						N15W56	4	0	0			N15W56	E	MAGQUIET
						N26W30	0	0	0			N26W30	Q	
						S20W29	9	1	0			S20W29	Q	
						S19W04	3	0	0			S19W04	Q	
						S15E33	0	0	0			S15E33	Q	
						S03E49	1	0	0			S03E49	Q	
						S15E56	7	0	0			S15E56	Q	
148	28	27	187	171	027	N22W72	2	0	0		28	N22W72	E	SOLQUIET
						N15W70	2	0	0			N15W70	E	MAGALERT 28/29
						N26W43	0	0	0			N26W43	Q	
						S20W42	10	0	0			S20W42	E	
						S19W16	2	0	0			S19W16	Q	
						S15E19	0	0	0			S15E19	Q	
						S04E35	5	0	0			S04E35	Q	
						S15E41	4	0	0			S15E41	E	
149	29	28	161	171	035	N14W84	8	2	0		29	N14W84	E	SOLALERT
						S21W55	7	0	0			S21W55	E	MAGALERT 29
						S19W29	0	0	0			S19W29	Q	
						S15E07	0	0	0			S15E07	Q	
						S04E22	11	2	0			S04E22	A	
						S14E29	3	0	0			S14E29	E	
						S04E66	0	0	0			S04E66	Q	
150	30	29	177	170	030	N15W96	3	2	1	Presto Soflare	30	N15W96	E	SOLALERT 30/01
						S21W68	1	0	0	M2/2B S04E20		S21W68	E	MAGALERT
						S20W40	0	0	0	29/0203Z Duration		S20W40	Q	
						N06W23	0	0	0	12 Minutes. Soflare		N06W23	Q	
						S20W08	0	0	0	X1/WL N15 West Limb		S20W08	Q	
						S15W06	0	0	0	29/2207Z Duration		S15W06	Q	
						S04E08	7	1	0	42 Minutes.		S04E08	E	
						N10E11	0	0	0			N10E11	Q	
						S15E16	0	0	0			S15E16	Q	
						S05E53	7	0	0			S05E53	Q	

ALERT PERIODS
INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE
MAY 1982

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions Location Lat-Long	No. of Flares Total	M	X	Outstanding events	Forecasts Date	Location Lat-Long	Desc*	Alert Situations
151	31	30	085	139	021	S21W80	1	0	0	Presto Tenflare	31	S21W80	E	SOLALERT 31
						S19W56	2	0	0	320 Flux Units		S19W56	Q	MAGNIL
						S15W19	0	0	0	30/0336Z Duration		S15W19	Q	
						S03W05	2	0	0	8 Minutes.		S03W05	E	
						S15E07	2	0	0			S15E07	Q	
152	01	31	123	133	026	S21W64	3	1	0		01	S21W64	Q	SOLNIL
						S15W32	0	0	0			S15W32	Q	MAGQUIET
						S03W19	0	0	0			S03W19	E	
						S15W08	6	0	0			S15W08	Q	
						S04E31	3	0	0			S04E31	Q	
						N19E50	0	0	0			N19E50	Q	
						N09E73	7	0	0			N09E73	Q	
						N14E76	0	0	0			N14E76	Q	

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups MF=Major Flare

PRESTO MESSAGES (THE RAPID REPORT OF MAJOR EVENTS)

20 MAY 1982 BOULDER 20/1447Z SOFLARE M4/2B N20E25 20/1410Z DURATION 30 MINUTES
29 MAY 1982 BOULDER 29/0250Z SOFLARE M2/2B S04E20 29/0302Z DURATION 12 MINUTES
29 MAY 1982 BOULDER 29/2207Z SOFLARE X1/WEST LIMB FLARE 29/2207Z DURATION 42 MINUTES
30 MAY 1982 TOYOKAWA 30/0432Z TENFLARE 320 FLUX UNITS 30/0336Z DURATION 8 MINUTES
30 MAY 1982 BOULDER 30/0415Z TENFLARE 240 FLUX UNITS 30/0338Z DURATION 8 MINUTES

RELATIVE SUNSPOT NUMBERS
INTERNATIONAL, R_I

	1981 FINAL							1982 PROVISIONAL				
DAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	62	149	121	205	216	165	193	92	258	167	145	63
2	59	140	105	183	206	222	197	94	241	174	115	57
3	44	140	112	160	219	218	212	112	232	175	151	46
4	58	112	109	170	189	221	212	109	221	177	137	58
5	55	112	113	195	195	233	219	99	219	163	112	63
6	57	85	102	220	169	199	234	86	230	165	117	64
7	58	66	107	205	171	192	244	94	226	146	130	69
8	46	62	115	208	185	184	249	97	232	140	131	89
9	58	65	121	190	177	134	258	98	211	116	132	47
10	59	99	138	196	144	147	253	85	199	122	138	53
11	72	130	136	164	131	146	263	46	158	119	152	58
12	79	139	140	138	123	160	240	52	156	135	142	75
13	86	153	134	132	171	158	185	51	162	155	148	78
14	99	145	140	148	187	178	159	58	142	153	136	58
15	111	150	153	129	212	139	113	81	134	140	127	52
16	109	161	134	138	223	126	66	76	111	156	122	69
17	119	171	125	129	219	103	80	111	120	180	108	76
18	104	161	148	145	210	108	79	139	103	168	91	89
19	90	151	175	156	189	90	74	143	107	167	87	110
20	71	145	188	137	183	82	57	134	119	149	93	112
21	87	122	222	175	145	82	65	134	120	153	91	98
22	106	129	220	172	145	73	75	121	100	146	109	121
23	119	162	200	137	118	65	86	93	97	144	138	107
24	109	196	178	135	109	59	68	70	120	122	145	110
25	127	213	189	142	101	60	62	82	115	152	149	88
26	127	206	215	153	92	60	100	119	136	147	150	117
27	133	218	222	181	75	77	104	125	140	182	126	130
28	123	208	214	195	92	130	136	168	145	189	90	108
29	138	159	194	191	131	148	132	216		169	85	102
30	161	156	233	190	152	165	112	211		162	75	66
31		152	216		156		126	237		132		89
MEAN	90.9	143.8	158.7	167.3	162.4	137.5	150.1	110.7	162.6	153.7	122.5	81.4

1981 YEARLY MEAN = 140.4

*ZURICH R_Z SUNSPOT NUMBER REPLACED BY INTERNATIONAL R_I SUNSPOT NUMBER BEGINNING WITH JANUARY 1981 DATA.

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1981							1982				
DAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	149.6	175.4	183.9	248.3	210.6*	222.5*	230.7*	179.9	284.8*	231.3	172.2*	151.7
2	144.3	168.9	182.6	242.8	204.8*	241.3*	230.3*	177.2	279.7*	228.3	172.0*	147.4
3	134.9	163.3*	192.4	229.0	196.5	255.3*	238.6	176.1	272.9*	230.1	169.9	147.7
4	133.8	165.9	190.6*	233.4	191.1	263.1	241.7	170.4	252.8*	238.3*	158.2	144.7
5	136.0	152.5	178.8	248.7	193.6*	254.1	260.0	165.5	245.2	245.4*	159.9*	148.7
6	140.6	148.7	179.6	263.2*	200.3	244.6	262.1	166.8	245.2	230.0*	165.2	153.0
7	146.7	149.8	173.0	262.5*	204.1*	241.4	275.6*	166.9*	239.9	228.3	164.0*	151.0
8	146.7*	152.4	178.4	266.3*	200.7*	234.7*	287.8	156.9	245.1*	207.1*	162.1*	150.8
9	152.8	150.0*	180.5	256.5	205.4*	232.6	292.4*	164.4	231.7	192.2	167.3*	139.8
10	157.1	156.5*	182.0	247.6	213.4	231.0*	278.7	145.7	213.7	178.9*	177.1*	130.7
11	154.8	167.4	206.4	240.8	220.0	217.0	266.7*	136.3	211.1*	178.2	178.7*	132.3
12	152.0	167.7*	209.0*	234.2	236.8*	223.5	254.2*	132.4	204.0*	181.2	177.5*	132.3
13	152.6	174.2*	208.7	230.2	256.2	215.9	218.9	127.5	194.9*	185.5	170.9	129.8
14	159.1	184.2	208.2	228.7*	275.6	207.4	193.0	130.5	185.3	201.3	157.9	132.2
15	164.7	194.5*	225.1	230.4	287.1	191.2	172.6	136.3	180.3	207.6*	152.2	132.1
16	169.1	205.3*	221.8*	227.5	302.4	181.2	157.4	146.7	170.5	227.7	148.2	139.0
17	171.2	200.8*	228.7	218.2*	302.9	172.7	144.2	152.6	162.5	230.4	145.9*	142.2*
18	170.1	204.7*	244.1	216.5*	296.5*	160.8*	136.3*	167.6	165.7	226.8	147.0	146.8
19	165.9	220.3	254.6*	210.5*	278.6	157.0	129.7	169.4	170.9*	219.7*	145.1	155.9
20	159.8	234.7*	269.8	200.1	257.8*	152.0	133.9	167.0	171.3	217.0	144.2	155.6*
21	153.6	228.1*	267.1*	191.2	238.2	153.9	142.2	163.3	165.2	212.4	145.2	165.4*
22	166.1*	235.9	262.2*	183.0	218.6	152.7	145.9	152.9	163.7	213.7	156.9*	158.8
23	171.2*	254.7*	254.8	183.8	208.2	151.9	153.0	148.0	173.1	202.4	175.2	155.7*
24	174.6	261.6*	258.9	182.2	201.1	150.4	156.1*	149.1	185.9*	189.0	181.0	144.8*
25	183.6	259.7	254.8	182.0	186.0	159.1	162.1	169.3*	184.1	189.9	182.6*	145.7
26	193.9	273.1*	272.9*	188.8	172.0	178.3*	166.2	182.7*	204.0	192.8*	178.3	158.0
27	193.4	255.8*	281.6*	202.8	171.2	190.3	176.8	197.2	222.1	195.4*	167.3	171.5*
28	191.6	223.6	275.3	200.9	182.4	206.4*	183.0	234.7	224.0	200.6	161.0*	171.3*
29	187.5*	213.3	259.1	204.5	187.5	226.5*	183.6	267.0		198.0	155.6	170.9*
30	179.0	204.2*	265.1	203.8	201.5	231.6	185.7	284.5		194.5*	149.8*	142.8
31		197.6	256.0*		207.1		182.8	289.1		184.1		136.7
MEAN	161.9	198.2	226.0	221.9	222.8	203.3	201.4	173.4	208.9	208.3	162.9	147.9

* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

MAY 1982

DAY OF MONTH	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	PROVISIONAL SUNSPOT NUMBERS		OBSERVED FLUX OTTAWA 2800	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_I	$R_{A'}$		AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	121	6	63	67	149.3				151.7					
2	122	7	57	54	145.1				147.4					
3	123	8	46	58	145.2	591	264	168	147.7	138	127	89	43	15
4	124	9	58	64	142.3	591	265	167	144.7	137	132	92	46	16
5	125	10	63	67	146.1				148.7					
6	126	11	64	74	150.3	584	264	169	153.0	149	133	92	51	28
7	127	12	69	76	148.2	577	260	174	151.0	147	136	89	49	40
8	128	13	89	79	148.0	583	266	176	150.8	146	135	91	53	54
9	129	14	47	51	137.2	615	283	164	139.8	145	129	96	45	16
10	130	15	53	58	128.1	572	259	157	130.7	126	124	85	41	15
11	131	16	58	65	129.7	585	261	161	132.3	129	119	82	43	14
12	132	17	75	72	129.6	590	257	159	132.3	128	117	78	42	13
13	133	18	78	72	127.1	573	255	153	129.8	125	116	71	39	15
14	134	19	58	51	129.4	577	257	156	132.2	125	119	82	37	13
15	135	20	52	55	129.3	566	258	156	132.1	129	120	78	42	53
16	136	21	69	71	135.9	560	259	159	139.0	131	120	77	41	14
17	137	22	76	85	139.0*	592	262	163	142.2*	136	130	90	42	14
18	138	23	89	92	143.4	582	270	165	146.8	141	133	86	43	14
19	139	24	110	111	152.2	584	274	184	155.9	150	137	88	41	14
20	140	25	112	108	152.0*	586	298	195	155.6*		154			
21	141	26	98	107	161.4*	606	295	200	165.4*	177	140	95	43	14
22	142	27	121	132	154.9	588	274	181	158.8	164	137	85	40	14
23	143	1	107	115	151.8*	581	276	182	155.7*	166	140	90	44	13
24	144	2	110	106	141.1*	561	278	163	144.8*	154	132	73	39	13
25	145	3	88	102	142.0	578	264	164	145.7	149	126	84	44	14
26	146	4	117	121	153.8	584	277	170	158.0	157	135	83	43	13
27	147	5	130	127	167.0*	596	289	198	171.5*	167	146	91	48	17
28	148	6	108	117	166.8*	590	309	197	171.3*	158	141	96	52	14
29	149	7	102	89	166.2*	581	291	185	170.9*	158	142	78	39	15
30	150	8	66	67	138.9	569	276	163	142.8	124	133	69	40	15
31	151	9	89	70	133.0	557	257	159	136.7	126	128	62	36	12
MEAN			81.4	83.3	144.7	582	271	171	147.9	144	131	84	43	19

*Adjusted for burst.
NOTE: Data gaps in AFGL Sagamore Hill data are due to equipment problems.

OBSERVED AND PREDICTED SOLAR ACTIVITY INDICES

Date	SUNSPOT NUMBERS: Rz or R_I Monthly Mean	Rz or R_I Smoothed	Ra Monthly Mean	Ra Smoothed	Rs Monthly Mean	Rs Smoothed	2800 MHz FLUX Adjusted to 1 AU Sa Monthly Mean	Sa Smoothed
Jun 79	149.5	153	136.4	144	138.9	144	186.0	191
Jul	159.4	155	140.5	145	123.1	145	171.4	192
Aug	142.2	155	125.1	144	129.2	145	177.0	192
Sep	188.4	156	184.0	143	156.5	144	202.3	191
Oct	186.2	158	178.2	144	171.7	145	216.4	192
Nov	183.3	162	176.5	149	182.9	149	226.8	196
Dec	176.3	164	157.6	152	151.0	152	197.2	199
Jan 80	159.6	164	145.3	153	153.6	154	199.6	200
Feb	155.0	163	133.9	154	148.7	155	195.1	200
Mar	126.2	161	107.9	153	117.8	153	166.5	200
Apr	164.1	159	138.5	151	164.0	152	209.3	198
May	179.7	156	172.3	149	185.4	151	229.1	197
Jun	157.3	155	153.6	149	153.2	151	199.3	198
Jul	136.3	153	136.0	144	144.1	151	190.8	197
Aug	135.4	150	133.0	144	121.9	150	170.3	196
Sep	155.0	150	150.0	146	138.8	152	185.9	198
Oct	164.7	150	160.8	149	157.1	154	202.9	200
Nov	147.9	148	149.9	149	168.5	153	213.4	199
Dec	174.4	143	167.5	145	174.3	150	218.8	196
Jan 81	114.0	140	115.4	144	120.5	149	169.0	195
Feb	141.3	142	143.7	146	153.5	152	199.5	198
Mar	135.5	143	149.2	149	157.5	156	203.2	202
Apr	156.4	143	169.2	149	180.7	158	224.7	204
May	127.5	143	141.3	149	152.8	159	198.9	204
Jun	90.9	142	99.0	147	112.9	158	161.9	203
Jul	143.8	140*	154.3	146	152.1	157	198.2	203
Aug	158.7	141*	170.4	147	182.1	158	226.0	203
Sep	167.3	143*	174.5	148	177.7	158	221.9	204
Oct	162.4	142*	157.0	146	178.6	156	222.8	202
Nov	137.5	139*	138.8	143	157.6	151	203.3	197
Dec	150.1	135(± 4)*	145.0	138	155.5	146	201.4	---
Jan 82	110.7†	130(± 8)*	110.4	133	124.2	141	173.4	---
Feb	162.6†	126(±10)*	161.0	129	163.6	136	208.9	---
Mar	153.7†	123(±10)*	155.5	126	163.0	133	208.3	---
Apr	122.5†	120(± 9)*	121.9	123	113.9	130	162.9	---
May	81.4†	117(± 9)*	---	120	97.7	126	147.9	---
Jun	---	113(±11)*	---	116	---	122	---	---
Jul	---	108(±12)*	---	111	---	117	---	---
Aug	---	103(±10)*	---	105	---	111	---	---
Sep	---	98(±10)*	---	100	---	105	---	---
Oct	---	91(± 9)*	---	94	---	98	---	---
Nov	---	87(±10)*	---	89	---	93	---	---

*An asterisk denotes either a value of the observed 12-month running mean or a predicted 12-month average that is based on preliminary observations of the Zurich and International relative sunspot numbers (R_Z and R_I). Parentheses enclose the 90% confidence limits. Shaded boxes enclose the most recent smoothed values; boxes not shaded enclose predicted values. Ra is the new symbol for R_A'. All tabulated entries of Ra are final values.

†R_I replaces R_Z as of January 1981.

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

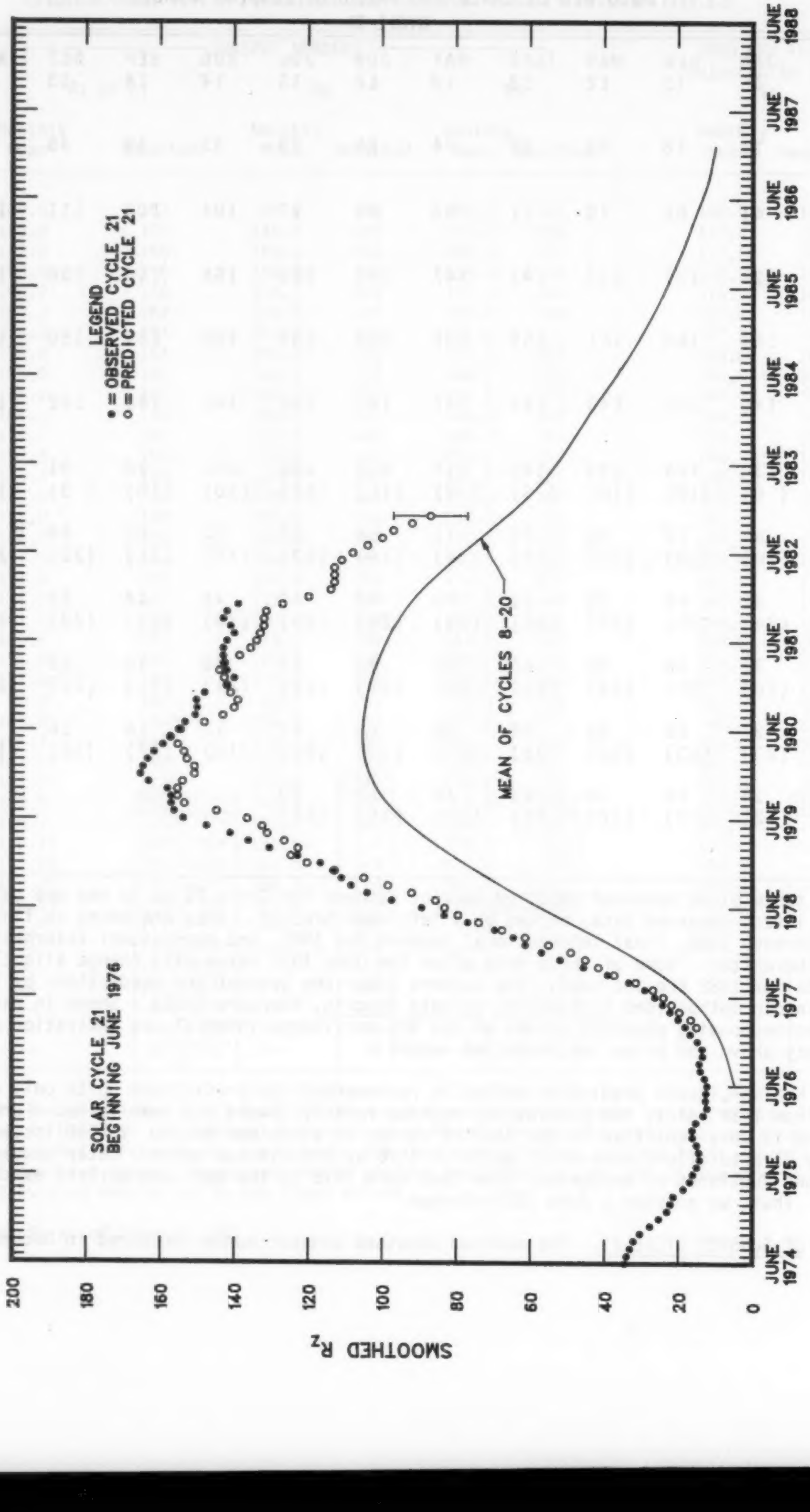
MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15	13	12	13	13	12	13	14	14	13	14	15
1977	17	18	20	22	24	26	29	33	39	46	52	57
1978	61	65	70	77	83	89	97	104	108	111	113	118
1979	124	131	137	141	147	153	155	155	156	158	162	165*
1980	164	163	161	159	156	155	153	150	150	150	148	143
1981	140	142	143	143	143	142	140	141	143	142	139	[135
												(4)
1982	130	126	123	120	117	113	108	103	98	91	87	84
	(8)	(10)	(10)	(9)	(9)	(11)	(12)	(10)	(10)	(9)	(10)	(11)
1983	80	77	76	74	71	68	67	66	65	64	64	63
	(10)	(10)	(11)	(12)	(14)	(16)	(17)	(19)	(21)	(22)	(23)	(23)
1984	62	59	55	51	49	49	47	45	44	42	40	38
	(24)	(25)	(25)	(26)	(28)	(29)	(29)	(30)	(29)	(28)	(27)	(26)
1985	37	36	36	36	35	33	31	30	30	29	28	28
	(26)	(25)	(24)	(24)	(24)	(23)	(22)	(21)	(21)	(22)	(22)	(22)
1986	27	26	25	24	22	20	18	17	16	16	16	15
	(23)	(23)	(22)	(22)	(21)	(20)	(20)	(19)	(17)	(16)	(15)	(13)
1987	15	15	15	15	16	17	19					
	(12)	(12)	(12)	(12)	(14)	(15)	(15)					

The table gives observed smoothed sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a left-hand bracket. They are based on final Zürich numbers through 1980, final International numbers for 1981, and provisional International numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1982 are included. The numbers after the bracket are predictions by the McNish-Lincoln method (see Explanation of Data Reports, February 1982). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

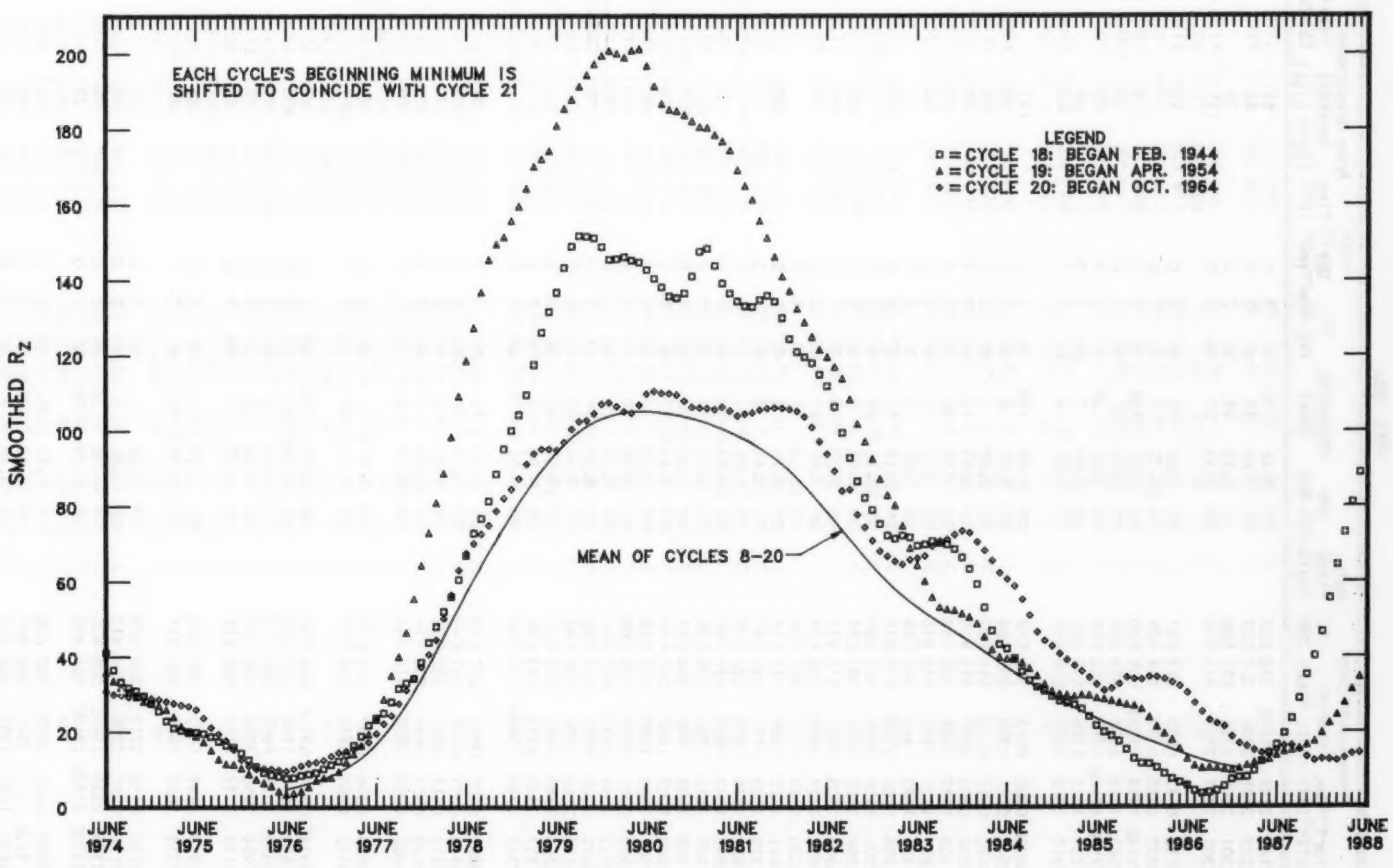
The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly toward the mean value. Furthermore, the method is very sensitive to the identification of a minimum epoch. In SGD issues 390-401, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Later studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we adopted a June 1976 minimum.

*MAXIMUM OF SUNSPOT CYCLE 21. The maximum smoothed sunspot number occurred in December 1979.

OBSERVED AND ONE-YEAR-AHEAD PREDICTED SMOOTHED SUNSPOT NUMBERS



SUPERPOSITION OF CYCLES 18, 19, AND 20



H - ALPHA SOLAR FLARES

MAY 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat CMD	Hale Plage Region	CMP Mo Day	Duration (Min)	Imp	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
HOLL	01	2147	2148	2154D	S18 E07		05 2.44	7D	SF	3	C		51		F 3714
PALE	01	2223	2225	2236	S17 E07		05 2.46	13	SF	2	C		40		F 3714
PALE	01	2301	2301	2325	S17 E06		05 2.42	24	SF	2	C		28		K 3714
PALE	01	2301	2311	2325	S17 E06		05 2.42	24	SN	2	C		119		F K 3714
LEAR	02	0138	0142	0203	S18 E07		05 2.60	25	SF	3	C		40		F 3714
LEAR	02	0332	0332	0337	S14 W85		04 25.72	5	SF	3	C				3715
HOLL	02	1514E	1524	1524D	S08 E69		05 7.81	10D	1B	3	C		210		3717
HOLL	02	1543	1549	1604	S18 W01		05 2.58	21	SN	3	C		36		3714
HOLL	02	1715E	1716U	1719	S10 E65		05 7.61	4D	SF	3	C		35		3717
HOLL	02	1721	1724	1728	S17 W02		05 2.57	7	SN	3	C		24		F 3714
PALE	02	1813	1816	1817	S18 W02		05 2.61	4	SF	3	C		46		3714
LEAR	03	0005E	0005	0023	S06 E52		05 6.90	18D	SB	3	C		147		FE 3717
LEAR	03	0344	0344	0350	S05 E64		05 7.95	6	SF	3	C		22		3717
LEAR	03	0422	0423	0430	S18 W07		05 2.65	8	SN	3	C		50		3714
LEAR	03	0754	0803	0807	S18 W10		05 2.57	13	SN	3	C		47		F 3714
RAMY	03	1406	1432	1454	S06 E58		05 7.93	48	SF	3	C		56		3717
RAMY	03	1427	1427	1433	S18 W16		05 2.38	6	SF	3	C		44		3714
HOLL	03	1441	1442	1449	S07 E58		05 7.96	8	SF	3	C		15		3717
HOLL	03	1458	1501	1543	S18 W19		05 2.18	45	SF	3	C		43		F 3714
HOLL	03	1501	1524	1527	S22 E85		05 10.16	26	SF	3	C				
HOLL	03	1554	1555	1559	S07 E57		05 7.93	5	SF	3	C		29		3717
RAMY	03	1603	1603	1609	S18 W17		05 2.37	6	SF	3	C		39		3714
HOLL	03	1616	1624	1659	S06 E57		05 7.95	43	SN	3	C		72		F 3717
HOLL	03	1620	1624	1631	S22 E84		05 10.14	11	SF	3	C				
RAMY	03	1621	1622	1629	S21 E74		05 9.36	8	SF	3	C		20		
HOLL	03	1728	1729	1737	S22 E87		05 10.42	9	SF	3	C				
HOLL	03	1831	1845	1853	S22 E79		05 9.85	22	SF	3	C				
RAMY	03	1840	1842	1859	S21 E82		05 10.07	19	SF	3	C				
PALE	03	1842	1842	1856	S20 E81		05 9.98	14	SF	3	C				
PALE	03	1858	1902	1926	S04 E54		05 7.83	28	SB	3	C		103		F 3717
RAMY	03	1900	1902	1932	S07 E49		05 7.46	32	SB	3	C		76		3717
HOLL	03	1901	1903	1925	S07 E56		05 7.99	24	SB	3	C		90		FE 3717
PALE	03	1959	2001	2008	S20 E80		05 9.96	9	SF	3	C				
HOLL	03	2032	2034	2057	S07 E56		05 8.05	25	SN	3	C		70		K 3717
HOLL	03	2032	2046	2057	S07 E56		05 8.05	25	SN	3	C		73		K 3717
HOLL	03	2144	2149	2204	S08 E53		05 7.88	20	SF	3	C		31		3717
HOLL	03	2336	2349	0021	S23 E79		05 10.07	45	SN	3	C				3719
LEAR	03	2337	2340	2343	S23 E76		05 9.84	6	SF	3	C				3719
LEAR	03	2347	2348	2348D	S21 E76		05 9.82	1D	SN	3	C				3719
HOLL	04	0003	0005	0018	S07 E53		05 7.97	15	SN	3	C		76		3717
LEAR	04	0243	0257	0339	S07 E49		05 7.79	56	SB	3	C		116		FE 3717
LEAR	04	0413	0413	0427	S22 E74		05 9.87	14	SF	3	C				F 3719
LEAR	04	0829	0833	0838	S22 E74		05 10.04	9	SN	3	C				3719
LEAR	04	0902	0903	0908	N16 W64		04 29.52	6	SN	3	C		19		3712
LEAR	05	0056	0056	0107	S06 E37		05 7.81	11	SN	3	C		24		F 3717
LEAR	05	0352	0356	0418	S06 E37		05 7.93	26	SN	3	C		67		F 3717
LEAR	06	0524E	0524U	0541D	S06 E19		05 7.65	17D	SN	2	C		62		F 3717
HOLL	06	1658	1659	1718	S07 E13		05 7.68	20	SN	3	C		160		F 3717
HOLL	06	1839	1839	1845	S06 E12		05 7.68	6	SN	3	C		29		F 3717
HOLL	06	1958	1958	2016	S06 E15		05 7.96	18	SF	3	C		22		F 3717
HOLL	06	2134	2137	2147	S06 E11		05 7.72	13	SN	3	C		64		3717
HOLL	08	1559	1559	1612	S03 W12		05 7.77	13	SF	3	C		27		3717
HOLL	08	1835	1850	1907	S04 W11		05 7.95	32	SF	3	C		22		3717
LEAR	09	0156	0156	0212	S04 W19		05 7.66	16	SF	3	C		26		3717
PALE	09	0158	0201	0206	S04 W17		05 7.81	8	SF	2	C		25		F 3717
LEAR	09	2326	2329	2329D	S06 W33		05 7.50	3D	SF	3	C		58		F 3717
HOLL	09	2330E	2330U	2349D	S04 W32		05 7.59	19D	SF	3	C		32		F 3717
LEAR	10	0558	0606	0623	S02 W38		05 7.41	25	SN	3	C		55		3717
HOLL	10	1312E	1312U	1341	S06 W41		05 7.48	29D	SF	3	C		90		F 3717
HOLL	10	1655	1656	1703	S06 W43		05 7.48	8	SF	3	C		19		FS 3717
LEAR	11	0321	0322	0329	S02 W50		05 7.40	8	SN	3	C		30		FH 3717
PALE	11	0322	0322	0333	S03 W50		05 7.40	11	SN	3	C		52		3717

H - ALPHA SOLAR FLARES

MAY 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Hale Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
LEAR	11	0650	0712	0723	S02	W52		05	7.40	33	SB	3	C		41		K 3717
LEAR	11	0650	0719	0723	S02	W52		05	7.40	33	SB	3	C		51		E K 3717
LEAR	12	0118	0119	0122	S06	W60		05	7.56	4	SF	3	C		19		3717
LEAR	12	0159	0200	0242	S05	W59		05	7.67	43	SB	3	C		118		UF 3717
LEAR	12	0603	0612	0617	S08	W13		05	11.28	14	SF	3	C		34		3721
LEAR	12	0741	0742	0805	S06	W67		05	7.30	24	SN	3	C		42		3717
PALE	12	2255E	2259U	2321	S07	W49		05	9.28	26D	SN	3	C		115		F 3722
PALE	12	2257E	2300U	2316	S06	W67		05	7.94	19D	SF	3	C		48		3717
PALE	12	2259E	2301U	2305	S07	E69		05	18.13	6D	SF	3	C		17		3731
PALE	13	0002E	0002	0014	S06	E68		05	18.09	12D	SF	3	C		24		3731
PALE	13	0205	0205	0214	S19	E61		05	17.75	9	SF	3	C		16		3733
LEAR	16	0049	0054	0058	N06	E05		05	16.41	9	SF	3	C		30		3727
LEAR	16	0432	0432	0438	N14	W76		05	10.44	6	SF	3	C				3720
LEAR	16	0754	0755	0758	N00	E03		05	16.55	4	SN	3	C		25		3727
HOLL	16	1845	1849	1854	S13	E00		05	16.78	9	SN	3	C		24		3733
HOLL	16	2157	2157	2204	S14	E01		05	16.99	7	SF	3	C		23		3733
HOLL	17	0013	0022	0027D	S17	E03		05	17.24	14D	SB	3	C		166		F 3733
LEAR	17	0038E	0038U	0057D	S13	W02		05	16.88	19D	SF	2	C		44		H 3733
PALE	17	1916	1918	1934	S09	E35		05	20.43	18	SN	3	C		59		3737
HOLL	17	2110	2111	2139	S17	W09		05	17.20	29	SN	3	C		121		F 3738
HOLL	17	2321	2323	2342	N22	E64		05	22.89	21	1F	3	C		136		F 3740
LEAR	18	0206	0210	0250	N19	E58		05	22.52	44	SB	3	C		122		FE 3740
LEAR	18	0225	0225	0229	N22	E74		05	23.79	4	SN	3	C				3741
HOLL	18	1250E	1250U	1314D	N23	E55		05	22.77	24D	SN	2	C				F 3740
RAMY	18	1448E	1505	1532	N25	E66		05	23.73	44D	SF	3	C		21		3741
HOLL	18	1504	1509	1528	N23	E66		05	23.72	24	SF	3	C		25		3741
PALE	18	1741E	1742U	1757	N26	E65		05	23.79	16D	SF	3	C		25		3741
PALE	18	1741E	1742U	1800	N22	E49		05	22.51	19D	SF	3	C		22		3740
PALE	18	1836	1840	1859	N22	E50		05	22.62	23	SF	3	C		48		F 3740
HOLL	18	1836	1839	1846	N19	E49		05	22.52	10	SF	3	C		22		3740
PALE	18	1841	1842	1858	S14	E63		05	23.54	17	SF	3	C		27		3742
PALE	18	1926	1926	1937D	N21	E47		05	22.42	11D	SF	3	C		22		K 3740
PALE	18	1926	1934	1937D	N21	E47		05	22.42	11D	SF	3	C		20		K 3740
HOLL	18	1956	2023	2054	S16	W20		05	17.31	58	SF	3	C		88		F 3733
HOLL	18	1957	2126	2148	N19	E52		05	22.80	111	SF	3	C		78		3740
PALE	18	2003E	2029U	2043D	S17	W18		05	17.47	40D	1F	3	C		204		E K 3733
PALE	19	0032	0034	0041	N25	E65		05	24.06	9	SF	3	C		16		3741
HOLL	19	1334	1347	1352	N19	E43		05	22.85	18	SF	3	C		24		F 3740
HOLL	19	1401	1410	1439	N19	E40		05	22.64	38	SF	3	C		81		F 3740
HOLL	19	1733	1742	1904	N20	E40		05	22.79	91	SB	3	C		90		FEK 3740
HOLL	19	1733	1752	1904	N20	E40		05	22.79	91	SN	3	C		115		K 3740
HOLL	19	1848	1849	1900	S16	W34		05	17.20	12	SF	3	C		20		3733
PALE	19	1850E	1851U	1901	S17	W33		05	17.28	11D	SF	3	C		25		3733
PALE	19	1933	1939	2029D	N22	E38		05	22.74	56D	SN	3	C		35		F 3740
HOLL	19	1941	1943	2026	N20	E40		05	22.88	45	SN	3	C		63		F 3740
HOLL	19	2039	2054	2121	N18	E34		05	22.45	42	SN	3	C		91		FH 3740
PALE	19	2041E	2058	2111	N20	E33		05	22.39	30D	SN	3	C		104		3740
PALE	19	2142	2142U	2204	N23	E38		05	22.83	22	SN	3	C		94		3740
HOLL	19	2142	2143	2203	N21	E39		05	22.90	21	SF	3	C		84		3740
HOLL	19	2229	2236	2259	N21	E33		05	22.47	30	SF	3	C		55		F 3740
PALE	19	2245E	2256U	2300D	N23	E52		05	23.96	15D	SF	3	C		22		3741
HOLL	19	2247	2255	2320	S15	E44		05	23.28	33	SF	3	C		51		F 3742
PALE	19	2248E	2255U	2304	S15	E46		05	23.44	16D	SN	3	C		46		F 3742
HOLL	19	2322	2325	2354	N20	E38		05	22.88	32	SF	3	C		25		F 3740
LEAR	20	0533	0536	0645	N19	E32		05	22.68	72	1N	3	C		208		F 3740
LEAR	20	0613	0614	0636	N20	E39		05	23.24	23	SN	3	C		102		3741
RAMY	20	1410	1428	1621	N20	E25		05	22.50	131	2B	3	C		539		ZU 3740
HOLL	20	1413	1421	1542	N19	E25		05	22.50	89	1B	3	C		407		ZU 3740
RAMY	20	1431	1436	1459	N13	E28		05	22.72	28	SF	3	C		44		3739
RAMY	20	1526	1529	1557	N14	E28		05	22.76	31	SF	3	C		33		3739
RAMY	20	1809	1812	1829	N19	E27		05	22.82	20	SN	3	C		46		3740
HOLL	20	1811	1811	1818	N19	E27		05	22.82	7	SN	3	C		33		F 3740
PALE	20	2109	2130	2203	N20	E23		05	22.64	54	SN	3	C		110		F 3740
HOLL	20	2111	2129	2205	N19	E25		05	22.79	54	SN	3	C		122		F 3740

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Halo Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	See	Obs Type	Area Measurement Time (UT)	Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
PALE	20	2206	2208	2231	N22	E27		05	23.00	25	SN	3	C		35		3740
PALE	20	2257	2258	2308	N19	E01		05	21.03	11	SN	3	C		90		3745
HOLL	20	2257	2258	2303	N19	E02		05	21.11	6	SF	3	C		68		3745
HOLL	20	2313	2313	2329	N22	E26		05	22.97	16	SF	3	C		26		F 3740
PALE	20	2314	2314	2324	N22	E25		05	22.89	10	SF	3	C		27		3740
PALE	21	0235	0246U	0315D	N19	E41		05	24.24	40D	SN	3	C		155		F 3743
PALE	21	0240	0246U	0315D	N23	E34		05	23.73	35D	SF	3	C		85		F 3741
PALE	21	0307E	0309	0315D	N20	E18		05	22.51	8D	SN	3	C		73		F 3740
HOLL	21	1246E	1246U	1258	S23	E57		05	25.93	12D	SF	2	C		30		
HOLL	21	1418E	1426	1509	N19	E13		05	22.59	51D	1B	3	C		489		FE 3740
HOLL	21	1523	1528	1533	S24	E55		05	25.89	10	SF	3	C		20		
PALE	21	1748	1811	1856D	S19	E69		05	27.01	68D	SF	2	C		29		F 3748
PALE	21	1820	1822	1838	N19	E07		05	22.30	18	SF	2	C		30		F 3740
HOLL	21	1855	1855	1910	N18	E08		05	22.40	15	SF	3	C		20		3740
HOLL	21	1943	2006	2046	N19	E11		05	22.66	63	1N	3	C		259		ZF 3740
HOLL	21	2047	2102	2109	N18	E06		05	22.32	22	SN	3	C		32		F 3740
HOLL	21	2156	2209	2302	N18	E07		05	22.45	66	SB	3	C		147		E 3740
PALE	21	2341E	0045U	0326D	N20	E07		05	22.52	225D	1B	3	C		363		E 3740
HOLL	22	0035	0039	0151D	N18	E05		05	22.41	76D	SB	3	C		193		ZE 3740
LEAR	22	0435	0442	0507	N18	E02		05	22.34	32	SN	3	C		49		F 3740
LEAR	22	0722E	0723U	0747	N19	E05		05	22.69	25D	SB	3	C		66		FE 3740
HOLL	22	1344E	1348	1406	N25	E26		05	24.59	22D	SF	3	C		50		F 3743
HOLL	22	1435	1438	1454D	N22	W01		05	22.53	19D	SN	3	C		52		F 3740
PALE	22	1746E	1805U	1843	N20	W01		05	22.66	57D	1N	3	C		226		E 3740
PALE	23	0201	0202	0207	N23	W09		05	22.39	6	SF	3	C		21		E 3740
PALE	23	0204	0204	0214	N24	E18		05	24.48	10	SF	3	C		21		3743
PALE	23	0204	0229	0316	N23	E04		05	23.39	72	SN	3	C		73		U 3741
PALE	23	0211	0227	0340	N20	W06		05	22.63	89	SN	3	C		38		K 3740
PALE	23	0211	0247	0340	N20	W06		05	22.63	89	1B	3	C		250		E K 3740
PALE	23	0307	0309	0319	N23	E18		05	24.52	12	SN	3	C		50		3743
HOLL	23	1244	1245U	1340D	N20	W13		05	22.54	56D	SN	3	C		67		F K 3740
HOLL	23	1244	1259	1340D	N20	W13		05	22.54	56D	SN	3	C		30		K 3740
HOLL	23	1528	1633	1736	N19	W17		05	22.35	128	SN	3	C		186		UF 3740
PALE	23	1835E	1835U	1842	N20	W05		05	23.39	7D	SF	3	C		29		3741
PALE	23	1843	1845	1948	N20	W15		05	22.63	65	1B	3	C		301		E 3740
HOLL	23	1843	1845	1932	N19	W17		05	22.48	49	1B	3	C		256		E 3740
PALE	23	2019E	2025	2026D	N21	E06		05	24.31	7D	1N	3	C		310		3743
HOLL	23	2024	2025	2032	N23	E11		05	24.70	8	SF	3	C		114		F 3743
PALE	23	2125	2126	2139	N21	W16		05	22.66	14	SN	3	C		39		3740
PALE	24	1711E	1723	1803	N17	W22		05	23.04	52D	1N	3	C		239		F 3739
HOLL	24	1928	1929	1937	N14	W24		05	23.00	9	SF	3	C		30		3739
PALE	24	2052E	2101U	2107	N18	W25		05	22.96	15D	SN	3	C		171		F 3739
HOLL	24	2205	2214	2234	N12	W32		05	22.51	29	SF	3	C		34		F 3739
PALE	24	2352	2355	0005	S22	E20		05	26.53	13	SN	3	C		117		3748
PALE	25	0054E	0054U	0113D	S23	E18		05	26.43	19D	SF	3	C		35		3748
HOLL	25	1235E	1253U	1315	N21	W36		05	22.76	40D	SN	2	C		118		F 3740
HOLL	25	1735	1735	1742	S17	E74		05	31.36	7	SF	3	C				3752
PALE	25	1742	1747	1754	S15	E74		05	31.34	12	SF	2	C				3752
PALE	25	1745	1749	1800D	N15	W37		05	22.94	15D	SN	2	C		75		3739
HOLL	25	1745	1749	1812	N21	W44		05	22.36	27	SN	3	C		113		F 3740
HOLL	25	1746	1747	1805	S16	E75		05	31.43	19	SF	3	C				3752
PALE	25	1747	1752	1758	S21	W12		05	24.82	11	SF	2	C		112		3747
HOLL	25	1747	1748	1800	N16	W37		05	22.93	13	SF	3	C		44		3739
HOLL	25	1843	1844	1855	N22	W37		05	22.93	12	SF	3	C		44		F 3740
HOLL	25	1849	1854	1910	S22	W13		05	24.78	21	SN	3	C		122		3751
HOLL	25	1905	1907	1911	N16	W38		05	22.91	6	SN	3	C		54		F 3739
HOLL	25	1906	1907	1933	N18	W39		05	22.82	27	SN	3	C		46		F 3740
HOLL	25	1936	1938	1945	N21	W42		05	22.59	9	SF	3	C		47		F 3740
HOLL	25	1936	1937	1949	S20	E13		05	26.81	13	SF	3	C		32		3748
HOLL	25	2013	2013	2017	N16	W38		05	22.96	4	SF	3	C		24		3739
HOLL	25	2013	2014	2018	S21	W13		05	24.84	5	SF	3	C		26		3751
HOLL	25	2027	2030	2047	N12	W41		05	22.76	20	SF	3	C		28		F 3739
HOLL	25	2102	2113	2213	N12	W42		05	22.71	71	SF	3	C		72		F 3739
HOLL	25	2223E	2232	2236	S21	W14		05	24.86	13D	SF	3	C		26		3751
LEAR	26	0125	0127	0135	S17	E71		05	31.46	10	SN	3	C		34		3752

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Hale Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	See	Obs Type	Area Measurement Time (UT)	Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks
LEAR	26	0138	0139	0154	N20	W42		05	22.85	16	SN	3	C		22		F 3740
LEAR	26	0335	0350	0357	S22	W68		05	20.92	22	SF	3	C		34		3749
LEAR	26	0347	0347	0355	N19	W49		05	22.42	8	SN	3	C		54		F 3740
LEAR	26	0401	0424	0439	S21	W18		05	24.79	38	SN	3	C		35		F
LEAR	26	0637	0639	0732	S21	W19		05	24.82	55	SN	3	C		49		F 3751
LEAR	26	0700	0704	0744	N19	W51		05	22.40	44	1B	3	C		186		FE 3740
HOLL	26	1245E	1245	1305	N17	W50		05	22.73	20D	SF	3	C		108		F 3739
HOLL	26	1301	1302	1312	N18	W49		05	22.81	11	SF	2	C		22		F 3740
HOLL	26	1303	1309	1316	S23	W24		05	24.69	13	SF	2	C		34		3751
HOLL	26	1325	1328	1331	S19	W25		05	24.65	6	SF	2	C		98		F 3751
HOLL	26	1331	1331	1337	S20	W24		05	24.73	6	SF	2	C		63		F 3751
HOLL	26	1337	1414	1421	N19	W50		05	22.75	44	SF	3	C		16		F 3740
HOLL	26	1352	1354	1412	N12	W51		05	22.73	20	SF	3	C		41		F 3739
HOLL	26	1448	1448	1500	S20	W23		05	24.86	12	SF	3	C		97		F 3751
HOLL	26	1449	1454	1455	N10	W51		05	22.78	6	SF	3	C		29		F 3739
HOLL	26	1540	1736	1845	S20	W26		05	24.66	185	SB	3	C		115		E 3751
HOLL	26	1753	1825	1852	N14	W53		05	22.74	59	SF	3	C		39		F 3739
PALE	26	1808E	1810U	2018D	S21	W25		05	24.84	130D	2N	3	C		521		E K 3751
PALE	26	1808E	1850	2018D	S21	W25		05	24.84	130D	1N	3	C		466		K 3751
PALE	26	1809	1816	1855	S03	E54		05	30.79	46	SF	3	C		85		
HOLL	26	1822	1828	1851	N18	W50		05	22.95	29	SN	3	C		69		F 3740
PALE	26	1824	1828	1857	N13	W53		05	22.76	33	SN	3	C		55		E 3739
PALE	26	1831	1833	1841	S20	E00		05	26.77	10	SF	3	C		37		E 3748
HOLL	26	1833	1833	1843	S20	E02		05	26.93	10	SF	3	C		28		3748
PALE	26	1847	1852	1906	S14	E60		05	31.32	19	SF	3	C		28		3752
HOLL	26	1850	1850	1856	S21	W26		05	24.79	6	SN	3	C		22		F 3751
PALE	26	1906	1915	1918	S20	E01		05	26.87	12	SF	3	C		24		3748
PALE	26	1928	1932	1941	N21	W55		05	22.59	13	SN	3	C		65		3740
PALE	26	1937	1946	2009	S19	W03		05	26.59	32	SF	3	C		22		3748
HOLL	26	2018E	2021	2031	S14	E60		05	31.38	13D	SN	3	C		30		H 3752
HOLL	26	2059	2100	2108	S14	E60		05	31.41	9	SF	3	C		20		3752
HOLL	26	2107	2107	2110	N22	W60		05	22.27	3	SF	3	C		25		H 3740
HOLL	26	2152	2153	2200	S13	E58		05	31.29	8	SF	3	C		15		3752
HOLL	26	2308E	2308U	2315	S19	W07		05	26.43	7D	SF	3	C		20		F 3752
LEAR	27	0033	0036	0042	S22	W28		05	24.87	9	SN	3	C		43		3751
LEAR	27	0348	0352	0405	S22	W30		05	24.85	17	SB	2	C		169		E 3751
LEAR	27	0434	0436	0450	S20	W31		05	24.82	16	SN	3	C		66		F 3751
LEAR	27	0451	0454	0509	S21	W04		05	26.90	18	SN	3	C		68		F 3748
LEAR	27	0508	0508	0536	S21	W30		05	24.91	28	SN	3	C		64		F 3751
LEAR	27	0522	0526	0537	S15	E55		05	31.39	15	SN	3	C		17		F 3752
LEAR	27	0550	0550	0611	S22	W32		05	24.78	21	SN	3	C		25		F 3751
LEAR	27	0631	0635	0651	S20	W32		05	24.82	20	SN	3	C		69		F 3751
LEAR	27	0643	0651	0659	N19	W65		05	22.32	16	SN	3	C		72		F 3740
LEAR	27	0706	0711	0725	S15	E54		05	31.39	19	SN	3	C		57		3752
LEAR	27	0758	0759	0808	N17	W59		05	22.84	10	SN	3	C		24		3740
LEAR	27	0758	0805	0858	N11	W60		05	22.81	60	SN	2	C		45		K 3739
LEAR	27	0758	0837	0858	N11	W60		05	22.81	60	SN	2	C		46		K 3739
LEAR	27	0805	0806	0908D	S20	W33		05	24.81	63D	SN	2	C		21		K 3751
LEAR	27	0805	0831	0908D	S20	W33		05	24.81	63D	SN	2	C		98		F K 3751
LEAR	27	0824	0828	0855	S15	E53		05	31.37	31	SB	2	C		73		FE 3752
LEAR	27	0841	0841	0852	S21	W06		05	26.90	11	SF	2	C		31		3748
HOLL	27	1234E	1234	1250	S05	E38		05	30.37	16D	SF	3	C		65		F 3753
HOLL	27	1331E	1333	1341	S05	E41		05	30.63	10D	SF	3	C		18		F 3753
HOLL	27	1453	1503	1507D	S20	W39		05	24.64	14D	SN	3	C		73		F 3751
HOLL	27	1501	1507U	1507D	S04	E41		05	30.69	6D	SN	3	C		142		F 3753
PALE	27	1814	1818	1922	S22	W38		05	24.84	68	SN	3	C		59		F 3751
PALE	27	1826	1831	1847	S03	E39		05	30.68	21	SN	3	C		43		3753
PALE	27	1859E	1901	1914	S03	E38		05	30.63	15D	SN	3	C		44		3753
HOLL	27	1902E	1902U	1905D	S04	E37		05	30.56	3D	SF	3	C		39		F 3753
PALE	27	1956	2009	2024	S03	E37		05	30.60	28	SB	3	C		37		E 3753
PALE	27	2105E	2105U	2120	S22	W39		05	24.88	15D	SN	3	C		53		F 3751
LEAR	28	0030	0031	0045	N13	W68		05	22.89	15	SF	2	C		28		F 3739
LEAR	28	0057	0058	0101	S22	W41		05	24.89	4	SN	2	C		31		F 3751
LEAR	28	0104	0104	0149	S04	E34		05	30.59	45	SF	2	C		31		K 3753
LEAR	28	0104	0114	0149	S04	E34		05	30.59	45	1B	2	C		319		FEK 3753
LEAR	28	0120	0121	0125	S22	W41		05	24.90	5	SN	2	C		106		3751
LEAR	28	0222	0225	0244	S21	W43		05	24.80	22	SN	2	C		58		F K 3751
LEAR	28	0222	0241	0244	S21	W43		05	24.80	22	SN	2	C		48		K 3751
LEAR	28	0303	0311	0351	N13	W70		05	22.84	48	1N	2	C		152		F 3739

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Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Hale Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	See	Obs Type	Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Corr (Sq Deg)	Remarks	
LEAR	28	0327	0328	0400	S04	E33		05	30.61	33	SB	2	C		91		FEK	3753
LEAR	28	0327	0340	0400	S04	E33		05	30.61	33	SN	2	C		74		K	3753
LEAR	28	0411	0414	0432	S21	W44		05	24.80	21	SN	2	C		49		F	3751
LEAR	28	0448	0451	0512	S22	W45		05	24.74	24	SN	3	C		56			3751
LEAR	28	0500	0508	0525	S06	E34		05	30.75	25	SN	3	C		53			3753
LEAR	28	0541	0549	0558	S06	E33		05	30.71	17	SN	3	C		49		F	3753
LEAR	28	0803	0807	0820	S06	E34		05	30.88	17	SN	3	C		27			3753
LEAR	28	0813	0821	0841	S22	W47		05	24.73	28	SN	3	C		53			3751
LEAR	28	0830	0832	0845	S05	E32		05	30.75	15	SB	3	C		54		FE	3753
HOLL	28	1232E	1232U	1300	N12	W74		05	22.94	28D	SN	3	C				F	3739
HOLL	28	1327	1328	1335	S20	W50		05	24.73	8	SF	3	C		23			3751
HOLL	28	1423	1427	1511	S05	E27		05	30.62	48	SB	3	C		102		FE	3753
HOLL	28	1457	1459	1503	N12	W78		05	22.74	6	SF	3	C					3739
HOLL	28	1529	1531	1604	S04	E25		05	30.52	35	1B	3	C		289		UE	3753
HOLL	28	1636	1640	1715	S06	E27		05	30.71	39	SB	3	C		50		FEK	3753
HOLL	28	1636	1655	1715	S06	E27		05	30.71	39	SN	3	C		84		K	3753
HOLL	28	1706	1706	1730	N13	W77		05	22.90	24	SB	3	C				FE	3739
HOLL	28	1823	1824	1830	N12	W79		05	22.81	7	SN	3	C					3739
PALE	28	1909E	1925	1931	N12	W77		05	22.99	22D	SF	3	C					3739
PALE	28	1909E	1926	1940	S03	E26		05	30.74	31D	SB	3	C		163		FE	3753
HOLL	28	1921	1922	1937	S04	E25		05	30.68	16	SB	3	C		122		FE	3753
HOLL	28	1946	1958	2011	S15	E34		05	31.40	25	SF	3	C		94			3752
PALE	28	1953E	1958U	2001D	S13	E34		05	31.40	8D	SN	3	C		121			3752
HOLL	28	2034	2037	2053	S15	E34		05	31.43	19	SF	3	C		131			3752
HOLL	28	2120	2120	2126	S15	E32		05	31.31	6	SF	3	C		53		F	3752
HOLL	28	2217	2217	2237	S04	E23		05	30.65	20	SN	3	C		111		F	3753
LEAR	28	2342	2354	0002	N11	W86		05	22.51	20	SN	2	C					3739
HOLL	28	2354	2357	0002	N12	W84		05	22.66	8	SF	3	C					3739
LEAR	29	0131	0131	0156	S04	E21		05	30.63	25	1N	2	C		244		F	3753
HOLL	29	0131E	0131U	0150D	S04	E21		05	30.63	19D	1N	3	C		240		F	3753
LEAR	29	0204	0209	0306	S04	E20		05	30.58	62	2B	2	C		745		FEK	3753
LEAR	29	0204	0249	0306	S04	E20		05	30.58	62	SF	2	C		95		K	3753
PALE	29	0249E	0254U	0320	S07	E68		06	3.21	31D	SF	3	C		52			3754
PALE	29	0302	0302	0308	N11	W89		05	22.43	6	SF	3	C					3739
PALE	29	0320	0330	0332	N11	W89		05	22.44	12	SF	3	C					3739
LEAR	29	0337	0337	0404	S20	W57		05	24.79	27	SF	2	C		14		F	3751
PALE	29	0339	0342	0401D	S21	W58		05	24.70	22D	SF	3	C		24			3751
PALE	29	0353	0354	0401D	S03	E20		05	30.66	8D	SN	3	C		24		F	3753
LEAR	29	0356	0356	0408	S04	E20		05	30.66	12	SF	2	C		49		F	3753
LEAR	29	0410	0410	0416	S08	E66		06	3.13	6	SF	2	C		15			3754
LEAR	29	0504	0519	0540	S04	E18		05	30.56	36	SN	3	C		80		F	3753
LEAR	29	0504	0524	0540	S04	E64		06	3.00	36	SF	3	C		89		F	3754
LEAR	29	0641	0702	0732	S04	E17		05	30.55	51	SN	3	C		156		F	3753
LEAR	29	0641	0705	0829	S09	E64		06	3.09	108	SN	3	C		60		F	3754
LEAR	29	0847	0858	0919D	S08	E62		06	3.02	32D	SN	3	C		74			3754
LEAR	29	0853	0853	0913	S03	E16		05	30.57	20	SF	3	C		29		F	3753
HOLL	29	1427	1427	1437	S03	E13		05	30.57	10	SF	3	C		101		F	3753
HOLL	29	2144	2146	2207	S09	E58		06	3.26	23	SF	3	C		21		F	3754
HOLL	29	2217	2228	2321	S08	E56		06	3.13	64	SF	3	C		47		F	3754
HOLL	30	0116	0116	0123	S06	E58		06	3.40	7	SF	3	C		20			3754
LEAR	30	0321	0333	0416	S09	E53		06	3.12	55	SN	3	C		54		K	3754
LEAR	30	0321	0359	0416	S09	E53		06	3.12	55	SN	3	C		39		F K	3754
LEAR	30	0323	0324	0329	S21	W72		05	24.62	6	SF	3	C				F	3751
LEAR	30	0340	0341	0426	S07	E08		05	30.75	46	SF	3	C		62		F	3753
LEAR	30	0459	0506	0617	S06	E05		05	30.58	78	SN	3	C		173		F	3753
LEAR	30	0613	0619	0640	S15	E13		05	31.24	27	SF	3	C		31			3752
LEAR	30	0817	0819	0836	S22	W51		05	26.42	19	SF	3	C		20			3748
HOLL	30	1424	1428	1446	S15	E09		05	31.28	22	SF	3	C		83		F	3752
HOLL	30	2012	2018	2029	S19	W53		05	26.79	17	SF	3	C		47		F	3748
PALE	30	2018	2020	2044D	S20	W52		05	26.87	26D	SF	2	C		53		F	3748
LEAR	31	0106	0113	0142	S15	E02		05	31.20	36	SF	3	C		73		F	3752
HOLL	31	0108	0113	0127	S14	E02		05	31.20	19	SF	2	C		50		F	3752
PALE	31	0112	0119	0130	S14	E03		05	31.28	18	SF	2	C		53		F	3752
LEAR	31	0310E	0311	0334	S20	W53		05	27.08	24D	SB	3	C		162		FE	3748
LEAR	31	0325	0327	0401	S15	E01		05	31.22	36	SF	3	C		74		F	3752
PALE	31	0325	0328	0337	S14	E02		05	31.29	12	SF	2	C		39		F	3752
PALE	31	0325E	0325U	0336	S20	W52		05	27.16	11D	SF	2	C		25			3748
LEAR	31	0406	0407	0417	S11	E40		06	3.18	11	SN	3	C		30			3754

H-ALPHA SOLAR FLARES

MAY 1982

Sta	Day	Start (UT)	Max (UT)	End (UT)	Lat	CMD	Hale Plage Region	CMP Mo	CMP Day	Duration (Min)	Imp	See	Obs Type	Area Measurement Time (UT)	Area Measurement Apparent (10^{-6} Disk)	Area Measurement Corr (Sq Deg)	Remarks
LEAR	31	0721	0726	0751	S20	W56		05	27.02	30	SN	3	C		40		K 3748
LEAR	31	0721	0733	0751	S20	W56		05	27.02	30	SN	3	C		41		K 3748
LEAR	31	0826	0828	0833	N08	E80		06	6.35	7	SF	3	C				
HOLL	31	1306	1311	1315	N07	E79		06	6.47	9	SF	3	C				
HOLL	31	1317	1319	1341	S13	E34		06	3.12	24	SF	3	C		65		F 3754
RAMY	31	1342E	1425	1425D	S10	E33		06	3.05	43D	1N	3	C		227		F 3754
HOLL	31	1343	1347	1401	S14	W04		05	31.27	18	SF	3	C		61		F 3752
HOLL	31	1356	1434	1501	S10	E33		06	3.06	65	SF	3	C		152		F 3754
HOLL	31	1412	1414	1440	S16	W05		05	31.21	28	SF	3	C		76		F 3752
RAMY	31	1600	1655	1709	N09	E74		06	6.22	69	SF	3	C				
HOLL	31	1623	1625	1637	N08	E78		06	6.53	14	SF	3	C				3759
HOLL	31	1639	1646	1705	N08	E78		06	6.55	26	SF	3	C				3759
HOLL	31	1727	1736	1742	N09	E77		06	6.51	15	SF	3	C				F 3759
PALE	31	1838	1838	1847	N09	E76		06	6.48	9	SF	3	C				3759
PALE	31	1852	1854	1904	S20	W63		05	26.96	12	SB	3	C		68		3748
HOLL	31	1852	1853	1904	S19	W63		05	26.97	12	SN	3	C		62		3748
PALE	31	1927	1929	1935	S09	W05		05	31.43	8	SF	3	C		28		
PALE	31	2111	2113	2136	S14	W09		05	31.20	25	SN	3	C		92		F 3752
HOLL	31	2112	2113	2129	S14	W08		05	31.28	17	SF	3	C		62		F 3752
PALE	31	2144	2149	2155	N09	E73		06	6.39	11	SN	3	C				F 3759
HOLL	31	2329	2330	2340	N08	E71		06	6.31	11	SF	3	C				3759

"Remarks":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by high-speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the H and K lines of CaII.
P = Flare shows helium D3 in emission.
Q = Flare shows Balmer continuum in emission.
R = Marked asymmetry in H-alpha line suggests ejection of high-velocity material.
S = Brightness follows disappearance of filament in same position.
T = Region active all day.
U = Two bright branches, parallel or converging.
V = Occurrence of an explosive phase: important, expansion within roughly 1 minute that often includes a significant intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide H-alpha line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

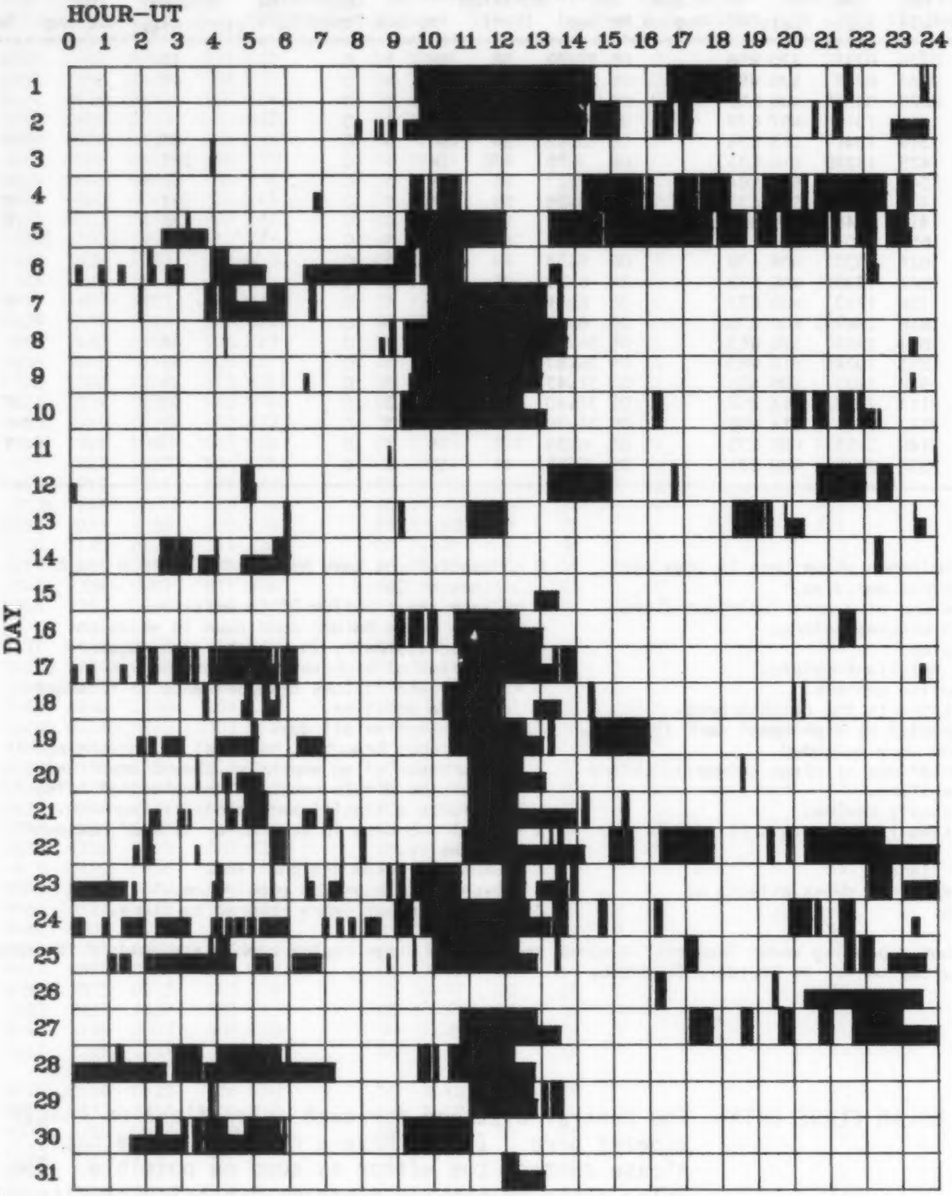
The 4-digit number appearing under "Remarks" denotes the calcium plage region number assigned by the Space Environment Services Center in Boulder, Colorado.

CHANGE IN SOLAR FLARE DATA: The Central Distance for each solar flare no longer appears here. If you have a need for these data, please contact the editor as soon as possible. The solar flare processing programs are being rewritten. The Central Distance will be eliminated unless a real need is determined.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

MAY 1982



Observatories included in total patrol:

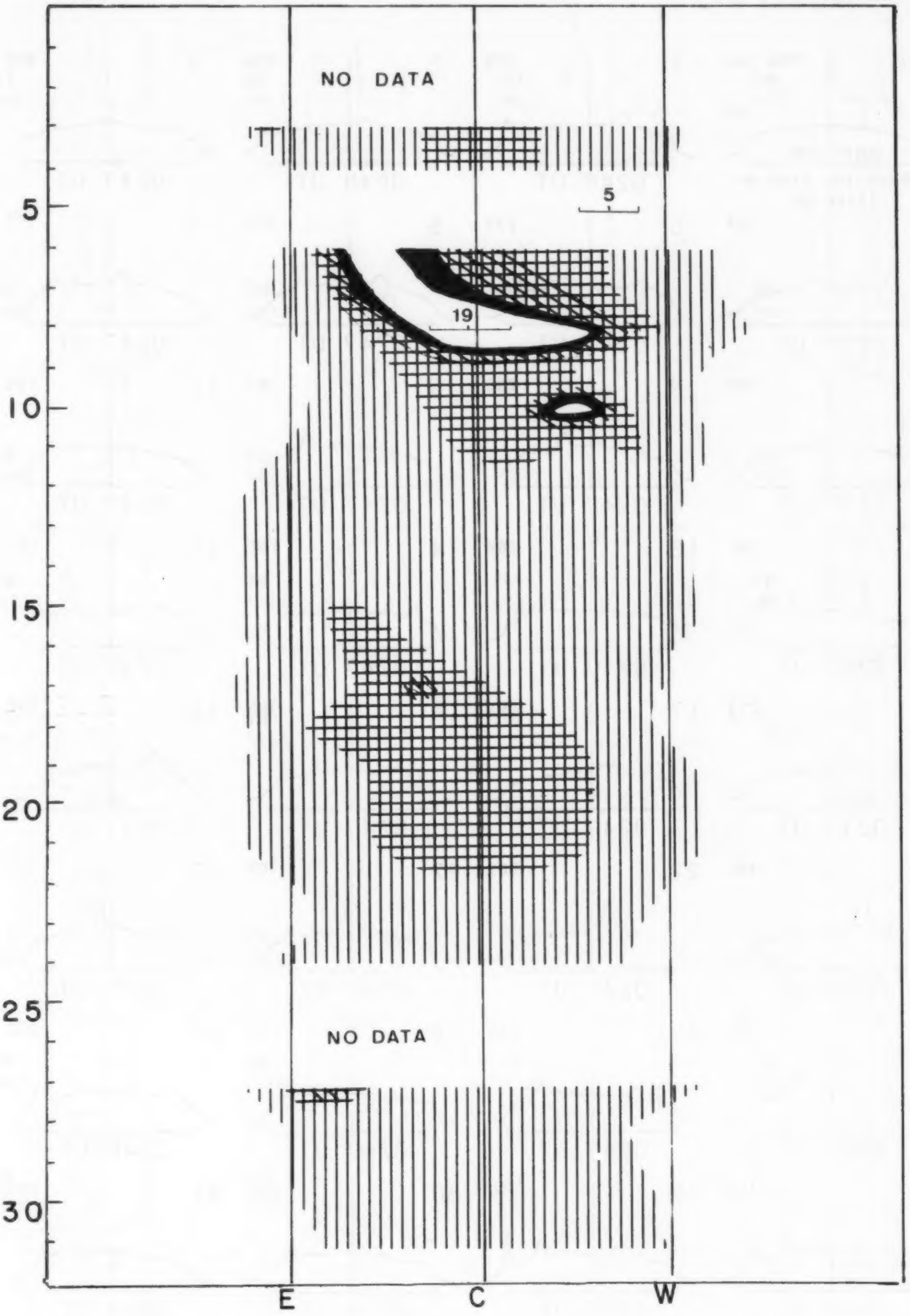
Bucharest	Learmonth	Monte Mario	Peking	Ramey
Holloman	Manila	Palehua	Purple Mt.	Wendelstein
				Yunnan

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day)

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

MAY 1982

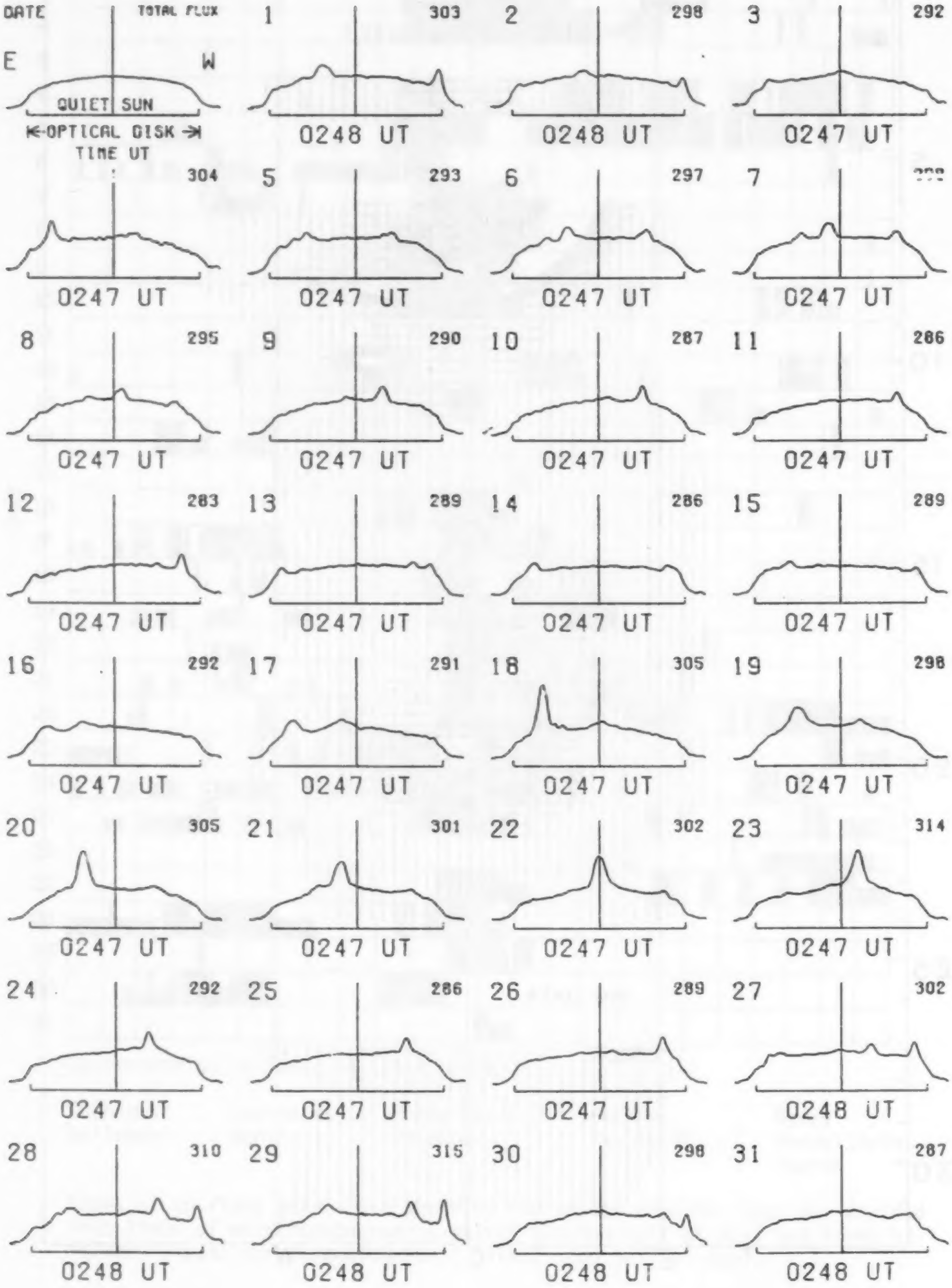
Nançay 169 MHz



EAST-WEST SOLAR SCANS
MAY 1982

TOYOKAWA.JAPAN

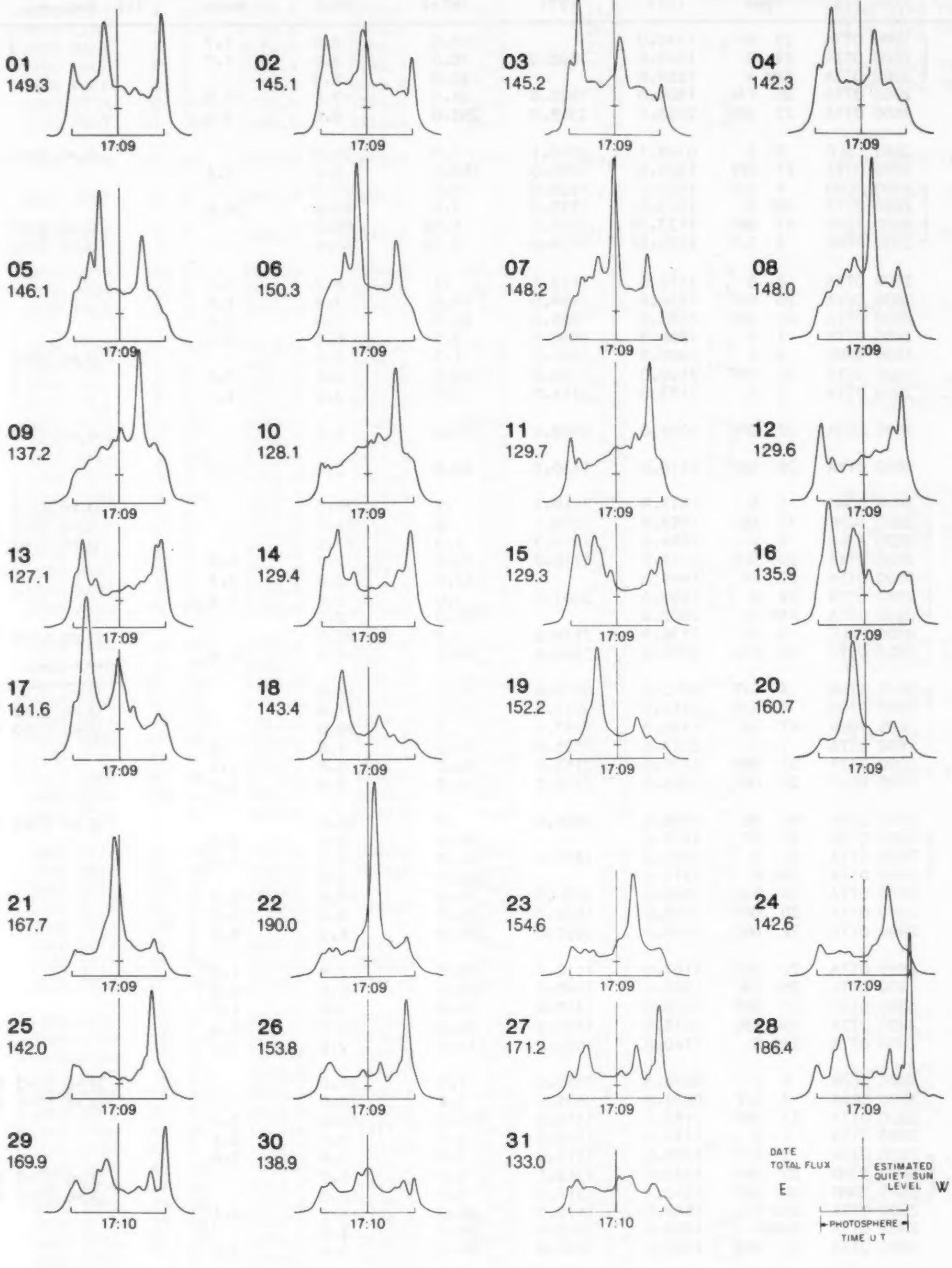
3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC



EAST-WEST SOLAR SCANS
MAY 1982

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7 cm
Fan Beam with 1·5 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 1982

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density (10 -22 W/m 2 Hz) Peak	Mean	Int	Remarks
01	2800	OTTA	27 RF	1540.0		165.0	2.0	1.7		
	2800	OTTA	24 R	1540.0	1600.0	20.0	2.0	1.0		
	2800	OTTA	24P R	1600.0		120.0	2.0			
	2800	OTTA	26 FAL	1800.0	1825.0	25.0	-2.0	-1.0		
	2800	OTTA	22 GRF	2020.0	2315.0	250.0	8.6	3.0		
02	2695	PALE	8 S	0349.1	0350.1	1.0	20.0			QL=6 ST=2 TYP=3
	2800	OTTA	21 GRF	1400.0	1535.0	180.0	5.4	2.4		
	8400	BERN	4 S/F	1522.6	1528.8	14.0	107.0			
	2800	OTTA	46F C	1523.0	1525.8	7.5	50.0	20.0		
	8800	ATHN	47 GB	1523.1E	1525.8	6.5D	56.0			QL=6 ST=2 TYP=5
	2695	ATHN	4 S/F	1523.5E	1526.0	6.1D	35.0			QL=6 ST=2 TYP=3
03	2800	OTTA	8 S	1112.0	1112.1	.7	6.2	3.0		
	2800	OTTA	20 GRF	1456.0	1459.0	15.0	3.4	1.5		
	2800	OTTA	21 GRF	1840.0	1905.0	80.0	5.0	2.4		
	2800	OTTA	1 S	1900.0	1902.0	2.5	6.6	3.3		
	2695	SGMR	8 S	1900.8	1901.3	1.3	8.0			QL=6 ST=2 TYP=3
	2800	OTTA	21 GRF	2120.0	2150.0	100.0	4.0	2.0		
	2800	OTTA	1 S	2153.0	2154.0	2.5	2.2	1.1		
04	2695	LEAR	20 GRF	0005.0	0008.0	15.0	5.0			QL=6 ST=2 TYP=2
C5	2800	OTTA	20 GRF	1410.0	1430.0	60.0	2.4	1.2		
06	2695	SGMR	8 S	1618.8	1619.1	.5	39.0			QL=6 ST=2 TYP=3
	8800	SGMR	47 GB	1658.8	1659.1	.5	52.0			QL=6 ST=2 TYP=5
	8800	ATHN	8 S	1658.8	1659.3	1.3	87.0			QL=5 ST=2 TYP=3
	2800	OTTA	20 GRF	1710.0	1716.0	50.0	2.2	1.0		
	2800	OTTA	27 RF	1955.0		165.0	2.8	2.4		
	2800	OTTA	24 R	1955.0	2002.0	7.0	2.8	1.4		
	2800	OTTA	24P R	2002.0		118.0	2.8			
	8800	PALE	8 S	2136.5	2136.6	.3	22.0			QL=6 ST=2 TYP=3
	2800	OTTA	26 FAL	2200.0	2240.0	40.0	-2.8	-1.4		
07	2695	ATHN	4 S/F	0913.3	0915.6	19.2	19.0			QL=6 ST=2 TYP=3
	8800	ATHN	4 S/F	0913.5	0917.8	19.3	17.0			QL=6 ST=2 TYP=3
	2695	SGMR	47 GB	1346.8	1347.1	.3	59.0			QL=6 ST=2 TYP=5
	2800	OTTA	1 S	2023.0	2025.0	10.0	1.6	.8		
	2800	OTTA	22 GRF	2125.0	2155.0	85.0	2.8	1.4		
	2695	PENT	20 GRF	2305.0	2325.0	40.0	4.0	2.0		
08	8800	LEAR	47 GB	0506.5	0506.6	.5	82.0			QL=6 ST=2 TYP=5
	2800	OTTA	27 RF	1225.0		185.0	2.8	2.2		
	2800	OTTA	24 R	1225.0	1315.0	50.0	2.8	1.4		
	2800	OTTA	24P R	1315.0		105.0	2.8			
	2800	OTTA	26 FAL	1500.0	1530.0	30.0	-2.8	-1.4		
	2800	OTTA	20 GRF	1545.0	1620.0	65.0	2.8	2.0		
	2800	OTTA	22 GRF	1805.0	2025.0	255.0	8.2	5.6		
09	2800	OTTA	20 GRF	1107.0	1112.0	35.0	2.8	1.4		
	2800	OTTA	260 FAL	1200.0	1345.0	105.0	-5.6	-2.8		
	2800	OTTA	20 GRF	1420.0	1445.0	50.0	2.6	1.6		
	2800	OTTA	260 FAL	1515.0	1535.0	20.0	-2.8	-1.4		
	2800	OTTA	240 R	1740.0	1930.0	110.0	2.8	1.2		
10	8800	LEAR	8 S	0555.3	0555.6	1.2	11.0			QL=6 ST=2 TYP=3
	8800	LEAR	4 S/F	0604.6	0605.6	2.4	10.0			QL=6 ST=2 TYP=3
	2800	OTTA	23 GRF	1150.0	1315.0	150.0	10.0	3.4		
	2800	OTTA	1 S	1151.0	1152.0	9.0	5.4	2.4		
	2800	OTTA	2 S/F	1310.0	1311.0	3.0	5.4	2.6		
	8800	SGMR	20 GRF	1310.0	1312.1	5.8	13.0			QL=6 ST=2 TYP=2
	2695	SGMR	20 GRF	1310.3	1311.3	3.7	10.0			QL=6 ST=2 TYP=2
	2800	OTTA	260 FAL	1540.0	1620.0	40.0	-4.2	-2.1		
	2800	OTTA	240AR	1920.0	2050.0	90.0	2.8			
	2800	OTTA	20 GRF	1925.0	1940.0	80.0	4.4	2.4		
11	8800	PALE	8 S	0321.1	0321.3	.5	47.0			QL=6 ST=2 TYP=3
	8800	LEAR	8 S	0711.1	0711.6	1.0	4.0			QL=6 ST=2 TYP=3
	8400	BERN	3 S	0948.8	0949.2	1.5	48.0			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 1982

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density (10 -22 W/m 2 Hz) Peak	Mean	Int	Remarks
12	8800	LEAR	4	S/F	0158.6	0159.6	4.5	21.0			QL=6 ST=3 TYP=3
	2695	LEAR	4	S/F	0158.6	0159.8	4.5	28.0			QL=6 ST=2 TYP=3
	2695	MANI	3	S	0159.0	0200.2	2.2	23.5	7.8		
	2695	PALE	8	S	0159.1	0159.8	1.2	29.0			QL=6 ST=2 TYP=3
	8800	PALE	8	S	0159.3	0159.6	1.0	22.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1705.0	1755.0	100.0	2.8	1.8		
	2695	PENT	22	GRF	2245.0	2310.0	180.0	5.4	2.8		
13	8800	ATHN	43	NS	0357.0	0402.0	11.6	160.0			QL=4 ST=2 TYP=1
14	8800	PALE	8	S	0404.8	0404.8	.2	17.0			QL=6 ST=2 TYP=3
15	8800	PALE	8	S	1640.5	1640.8	1.3	27.0			QL=6 ST=2 TYP=3
16	2800	OTTA	240	R	1915.0	2100.0	105.0	4.2	2.8		
	2800	OTTA	240	R	2150.0	2220.0	30.0	2.8	1.4		
	2695	PALE	8	S	2311.8	2312.6	1.0	20.0			QL=6 ST=2 TYP=3
17	2695	PENT	21	GRF	0015.0	0025.0	25.0	2.8	1.4		
	2695	PENT	3	S	0021.0	0021.6	1.5	33.0	11.0		
	2695	LEAR	8	S	0021.3	0021.5	.5	38.0			QL=6 ST=2 TYP=3
	2695	PALE	8	S	0021.3	0021.6	.7	49.0			QL=6 ST=2 TYP=3
	2800	OTTA	21	GRF	1630.0	1900.0	210.0	5.8	3.4		
	2800	OTTA	1	S	1634.5	1634.8	1.2	2.8	1.3		
	2800	OTTA	2	S/F	2109.8	2110.5	1.8	3.0	1.8		
	2695	PENT	3	S	2318.0	2321.0	6.0	26.0	8.6		
	2695	LEAR	4	S/F	2319.3	2320.8	2.5	29.0			QL=5 ST=2 TYP=3
	8800	LEAR	8	S	2319.6	2320.6	2.0	20.0			QL=5 ST=2 TYP=3
	2695	PALE	8	S	2320.0	2320.5	1.1	22.0			QL=6 ST=2 TYP=3
	8800	PALE	8	S	2320.0	2320.5	1.5	39.0			QL=6 ST=2 TYP=3
	2695	MANI	3	S	2320.0	2321.0	2.0	35.1	11.7		
	8800	MANI	3	S	2320.5	2321.0	1.5	41.8	13.9		
	2695	PENT	29	PBI	2324.0	2324.0	80.0	3.2	1.6		
18	2695	LEAR	4	S/F	0204.8	0205.8	15.5	13.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0205.0	0211.3	15.0	20.0			QL=6 ST=2 TYP=3
	2800	OTTA	21	GRF	1105.0	1230.0	255.0	9.4	2.4		
	2695	ATHN	47	GB	1211.6	1216.0	12.7	110.0			QL=5 ST=3 TYP=5
	2800	OTTA	4	S/F	1212.0	1216.0	15.0	110.0	28.8		
	8800	SGMR	47	GB	1212.6	1216.6	19.2	300.0			QL=6 ST=2 TYP=5
	8400	BERN	45	C	1213.1	1216.9	35.0U	428.0			
	2695	SGMR	47	GB	1213.3	1216.1	10.2	119.0			QL=6 ST=2 TYP=5
	2800	OTTA	240	R	1950.0	2020.0	30.0	5.2	3.5		
	2800	OTTA	1	S	2049.5	2052.0	4.0	1.8	.9		
19	2800	OTTA	20	GRF	1510.0	1540.0	60.0	2.4	1.2		
	2800	OTTA	20	GRF	1808.0	1814.0	35.0	3.8	1.6		
	2800	OTTA	27A	RF	1920.0		160.0	3.2	2.7		
	2800	OTTA	24	R	1920.0	1945.0	25.0	3.2	1.6		
	2800	OTTA	24P	R	1945.0		105.0	3.2			
	2800	OTTA	1	S	2041.0	2044.5	9.0	8.2	2.0		
	2800	OTTA	26	FAL	2130.0	2200.0	30.0	-3.2	-1.6		
	2695	PENT	20	GRF	2320.0	2330.0	70.0	3.2	2.0		
20	2695	LEAR	8	S	0201.1	0201.3	.2	6.0			QL=6 ST=2 TYP=3
	8800	ATHN	4	S/F	0532.1	0535.6	7.0	24.0			QL=5 ST=2 TYP=3
	8400	BERN	3	S	0532.8	0535.9	6.0	41.0			
	8800	LEAR	4	S/F	0533.6	0534.0	3.5	27.0			QL=6 ST=2 TYP=3
	2695	ATHN	4	S/F	0534.1	0536.5	6.2	2.0			QL=5 ST=2 TYP=3
	8400	BERN	45	C	1413.5	1421.2	47.0U	197.0			ONLY PAPER REC
	8800	ATHN	47	GB	1413.6	1417.5	24.2	119.0			QL=6 ST=2 TYP=5
	2800	OTTA	45	C	1414.0	1421.0	16.0	105.0	45.0		
	2695	SGMR	47	GB	1414.0	1421.1	11.0	119.0			QL=6 ST=2 TYP=5
	2695	ATHN	47	GB	1414.1	1417.8	25.9	63.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	1415.3	1421.3	8.5	160.0			QL=6 ST=2 TYP=5
	2800	OTTA	29	PBI	1430.0	1430.0	285.0	22.8	9.0		
	2800	OTTA	21	GRF	2000.0	2140.0	200.0	3.8	2.0		
	2800	OTTA	1	S	2114.0	2115.5	3.0	2.4	1.2		
21	2695	SGMR	47	GB	1413.0	1423.8	19.8	95.0			QL=6 ST=3 TYP=5

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 1982

Day	Freq	Sta	Type	Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density (10 -22 W/m 2 Hz) Peak	Mean	Int	Remarks
21	2695	PENT	4 S/F	1414.0	1424.0	19.0	77.0	30.0		
	8400	BERN	4 S/F	1415.0	1423.7	45.0U	266.0			
	8800	SGMR	47 GB	1416.0	1423.6	15.3	180.0			QL=6 ST=3 TYP=5
	2800	OTTA	29 PBI	1433.0	1433.0	202.0	19.4	8.8		
	2800	OTTA	260 FAL	1756.0	1811.0	15.0	-6.2	-3.1		
	2800	OTTA	20 GRF	1957.0	2006.0	40.0	5.2			
	2800	OTTA	20 GRF	2155.0	2220.0	145.0	9.4	5.0		
22	2695	PENT	21 GRF	0036.0	0055.0	70.0D	11.6			
	2695	PENT	3 S	0038.5	0039.2	4.0	27.2	13.0		
	8800	LEAR	4 S/F	0038.6	0039.1	7.2	38.0			QL=6 ST=2 TYP=3
	8800	PALE	8 S	0038.8	0039.1	1.5	22.0			QL=6 ST=2 TYP=3
	2695	MANI	3 S	0039.0	0040.0	3.0	40.0	13.3		
	2695	LEAR	8 S	0039.1	0039.1	1.2	27.0			QL=6 ST=2 TYP=3
	2695	PALE	8 S	0039.1	0039.5	1.2	24.0			QL=6 ST=2 TYP=3
	8800	LEAR	8 S	0223.6	0224.0	.7	44.0			QL=6 ST=2 TYP=3
	8800	PALE	8 S	0223.8	0224.0	.3	37.0			QL=6 ST=2 TYP=3
	8800	LEAR	47 GB	0713.8	0716.5	5.2	56.0			QL=6 ST=2 TYP=5
	8400	BERN	3 S	0715.3	0716.5	4.0	56.0			
	8800	ATHN	8 S	0715.6	0716.6	1.7	33.0			QL=5 ST=2 TYP=3
	2800	OTTA	27A RF	1330.0		380.0	3.2	3.0		
	2800	OTTA	24 R	1330.0	1350.0	20.0	3.2	1.6		
	2800	OTTA	24P R	1350.0		340.0	3.2			
	2800	OTTA	20 GRF	1440.0	1443.0	25.0	3.8	1.9		
	8400	BERN	45 C	1702.0	1703.4	15.0U	208.0			
	8800	ATHN	47 GB	1702.5	1703.6	13.1	230.0			QL=5 ST=2 TYP=5
	8800	SGMR	47 GB	1702.8	1703.3	2.0	160.0			QL=6 ST=2 TYP=5
	8800	PALE	47 GB	1702.8	1703.3	7.2	160.0			QL=6 ST=3 TYP=5
	2695	ATHN	4 S/F	1702.8	1704.0	12.8	27.0			QL=5 ST=2 TYP=3
	2800	OTTA	45 C	1703.0	1707.5	8.0	45.0	22.5		
	2695	SGMR	4 S/F	1703.1	1703.8	6.0	43.0			QL=6 ST=2 TYP=3
	2695	PALE	4 S/F	1703.3	1703.8	8.2	32.0			QL=6 ST=3 TYP=3
	2800	OTTA	30 PBI	1711.0	1711.0	87.0	15.8	6.9		
	2800	OTTA	20 GRF	1755.0	1805.0	30.0	3.2	1.6		
	2800	OTTA	26 FAL	1930.0	1950.0	20.0	-3.2	-1.6		
	2800	OTTA	1 S	2040.9	2041.1	1.0	3.6	1.8		
	8800	SGMR	47 GB	2057.5	2057.6	.3	139.0			QL=6 ST=2 TYP=5
23	2695	LEAR	4 S/F	0244.1	0245.1	5.2	49.0			QL=6 ST=2 TYP=3
	2695	MANI	3 S	0244.2	0245.9	2.8	50.5	16.8		
	8800	LEAR	4 S/F	0244.5	0245.1	4.8	28.0			QL=6 ST=2 TYP=3
	2800	OTTA	20 GRF	1600.0	1630.0	100.0	3.0	1.6		
	2800	OTTA	4 S/F	1842.5	1844.9	3.5	43.0	8.0		
	2695	SGMR	8 S	1844.6	1844.8	.7	38.0			QL=6 ST=2 TYP=3
	8800	PALE	47 GB	1844.6	1845.0	.7	82.0			QL=6 ST=2 TYP=5
	2695	PALE	8 S	1844.6	1845.0	.5	40.0			QL=6 ST=2 TYP=3
	8800	SGMR	47 GB	1844.8	1845.0	.3	52.0			QL=6 ST=2 TYP=5
	2800	OTTA	29 PBI	1846.0	1846.0	67.0	7.6	3.5		
24	2800	OTTA	1 S	1126.0	1126.5	2.0	1.8	0.9		
	2800	OTTA	22 GRF	1140.0	1230.0	480.0	8.4	4.4		
25	2800	OTTA	20 GRF	1250.0	1300.0	50.0	3.4	1.7		
	2800	OTTA	22 GRF	1850.0	1907.0	60.0	3.0	1.5		
	8800	PALE	47 GB	1928.5	1933.6	5.3	119.0			QL=6 ST=2 TYP=5
26	2695	LEAR	4 S/F	0701.8	0702.8	7.8	32.0			QL=6 ST=2 TYP=3
	2695	ATHN	4 S/F	0702.3	0703.1	8.5	30.0			QL=6 ST=2 TYP=3
	8800	ATHN	4 S/F	0702.3	0703.1	8.5	16.0			QL=6 ST=2 TYP=3
	8800	LEAR	47 GB	0702.3	0704.5	5.3	89.0			QL=6 ST=3 TYP=5
	2800	OTTA	1 S	1106.0	1108.0	3.5	7.0	2.4		
	2800	OTTA	240AR	1204.0	1216.0	12.0	5.6	2.8		
	2800	OTTA	1 S	1207.0	1208.0	3.5	2.8	1.6		
	2800	OTTA	20 GRF	1218.0	1228.0	80.0	3.4	1.7		
	2800	OTTA	20 GRF	1440.0	1517.0	130.0	4.0	2.0		
	2800	OTTA	240 R	1725.0	1750.0	25.0	4.2	2.1		
	2800	OTTA	23 GRF	1804.0	1828.0	95.0	6.2	2.0		
	2800	OTTA	8 S	1805.5	1805.7	.7	2.2	1.0		
	2800	OTTA	1 S	1837.0	1837.2	1.0	2.2			
	2800	OTTA	1 S	1845.0	1846.1	4.0	8.4	4.2		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 1982

Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density (10 -22 W/m 2 Hz) Peak	Mean	Int	Remarks
26	2800	OTTA	1	S	1926.8	1927.0	1.2	2.8	1.4		
	2800	OTTA	2	S/F	2117.0	2118.0	4.0	4.2	2.0		
	2800	OTTA	20	GRF	2210.0	2225.0	120.0	3.8	1.9		
27	8800	LEAR	4	S/F	0507.8	0508.0	2.3	17.0			QL=6 ST=2 TYP=3
	2695	LEAR	8	S	0828.8	0829.0	1.2	10.0			QL=6 ST=2 TYP=3
	2800	OTTA	20	GRF	1100.0	1220.0	115.0	4.8	2.4		
	2800	OTTA	20	GRF	1420.0	1555.0	220.0D	7.6	3.8		
	2800	OTTA	240	R	1825.0	1840.0	15.0	4.2	2.1		
	2800	OTTA	20	GRF	1841.0	1910.0	75.0	2.8	1.4		
28	2695	OTTA	2	S/F	0012.0	0014.7	6.0	8.6	3.0		
	2695	LEAR	4	S/F	0112.1	0114.6	5.0	10.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0112.8	0114.0	9.5	40.0			QL=6 ST=2 TYP=5
	8800	MANI	3	S	0221.6	0222.0	1.2	34.5	11.5		
	2695	MANI	3	S	0221.6	0222.7	1.8	7.1	2.4		
	8800	LEAR	8	S	0222.0	0222.1	.1	17.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0302.6	0302.8	5.4	26.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0302.8	0303.1	.3	18.0			QL=6 ST=2 TYP=3
	2695	MANI	3	S	0303.0	0303.3	1.0	27.5	9.2		
	8800	MANI	3	S	0303.0	0303.3	1.0	30.6	10.2		
	2695	ATHN	4	S/F	0934.1	0935.0	3.4	8.0			QL=5 ST=2 TYP=3
	8800	ATHN	4	S/F	0934.3	0935.1	3.2	5.0			QL=5 ST=2 TYP=3
	2800	OTTA	21	GRF	1220.0	1250.0	185.0	5.0	2.5		
	8800	ATHN	8	S	1249.3	1249.6	1.2	27.0			QL=5 ST=2 TYP=3
	2800	OTTA	1	S	1426.2	1427.0	2.0	3.0	1.4		
	8800	SGMR	4	S/F	1426.3	1427.0	2.3	28.0			QL=6 ST=2 TYP=3
	8800	ATHN	47	GB	1426.3	1427.1	1.8	55.0			QL=6 ST=2 TYP=5
	2695	ATHN	8	S	1426.3	1427.1	1.8	8.0			QL=6 ST=2 TYP=3
	2800	OTTA	23	GRF	1528.0	1548.0	200.0	7.0			
	8800	SGMR	47	GB	1528.1	1530.0	3.7	150.0			QL=6 ST=3 TYP=5
	8800	ATHN	47	GB	1528.6	1530.5	4.7	139.0			QL=6 ST=2 TYP=5
	2695	SGMR	4	S/F	1528.8	1530.3	3.2	28.0			QL=6 ST=3 TYP=3
	2800	OTTA	4	S/F	1529.0	1530.0	5.0	23.0	8.0		
	2695	ATHN	4	S/F	1529.1	1530.5	4.2	18.0			QL=6 ST=2 TYP=3
	8400	BERN	45	C	1529.7	1530.0	6.0U	168.0			
	2695	ATHN	47	GB	1704.5	1705.1	5.3	68.0			QL=6 ST=2 TYP=5
	8800	ATHN	47	GB	1704.5	1705.5	6.6	100.0			QL=6 ST=2 TYP=5
	8400	BERN	4	S/F	1705.0	1706.5	7.0	122.0			
	2800	OTTA	3	S	1705.0	1706.5	5.0	100.0	45.0		
	8800	PALE	47	GB	1705.3	1706.0	5.0	130.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	1705.3	1706.1	2.5	110.0			QL=6 ST=2 TYP=5
	2695	PALE	47	GB	1705.3	1706.3	3.0	100.0			QL=6 ST=2 TYP=5
	2695	SGMR	47	GB	1705.3	1706.5	3.3	91.0			QL=6 ST=2 TYP=5
	8800	ATHN	47	GB	1705.5	1706.3	5.6	100.0			QL=6 ST=3 TYP=5
	2695	ATHN	47	GB	1705.5	1706.3	4.8	68.0			QL=6 ST=3 TYP=5
	2800	OTTA	29	PBI	1710.0	1710.0	60.0	15.2	5.2		
	2800	OTTA	2	S/F	1921.0	1923.0	7.0	2.8	1.4		
	2800	OTTA	240	R	1935.0	2005.0	30.0	2.6	1.4		
	2800	OTTA	20	GRF	2045.0	2120.0	75.0	2.8	1.7		
	2800	OTTA	21	GRF	2200.0	2218.0	38.0	2.8	1.4		
	2800	OTTA	8	S	2216.6	2216.6	.1	8.8			
	8800	SGMR	8	S	2217.0	2217.6	1.1	27.0			QL=6 ST=2 TYP=3
	2695	PENT	21	GRF	2255.0		125.0	4.0	2.0		
	2695	PENT	1	S	2344.5	2345.5	10.0	3.4	1.8		
29	2695	PENT	1	S	0031.0	0032.0	2.0	4.2	2.5		
	8800	PALE	8	S	0131.3	0131.3	.5	50.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0131.3	0131.6	.5	43.0			QL=6 ST=2 TYP=3
	8800	MANI	3	S	0131.7	0132.1	.7	80.6	26.9		
	2695	MANI	3	S	0131.7	0132.1	.7	18.8	6.3		
	2695	MANI	4	S/F	0204.5	0209.0	6.5	112.8	37.6		
	2695	PALE	47	GB	0205.3	0208.5	7.8	62.0			QL=6 ST=2 TYP=5
	8800	LEAR	47	GB	0205.6	0208.5	9.5	90.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	0205.6	0208.5	7.2	60.0			QL=6 ST=2 TYP=5
	8800	MANI	4	S/F	0205.8	0208.7	4.9	84.8	28.3		
	8800	PALE	47	GB	0206.8	0208.5	2.3	91.0			QL=6 ST=2 TYP=5
	8800	LEAR	4	S/F	0519.0	0519.5	3.3	11.0			QL=6 ST=2 TYP=3
	8800	LEAR	4	S/F	0608.6	0612.0	6.7	13.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0608.8	0611.5	4.5	13.0			QL=6 ST=2 TYP=3

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

MAY 1982

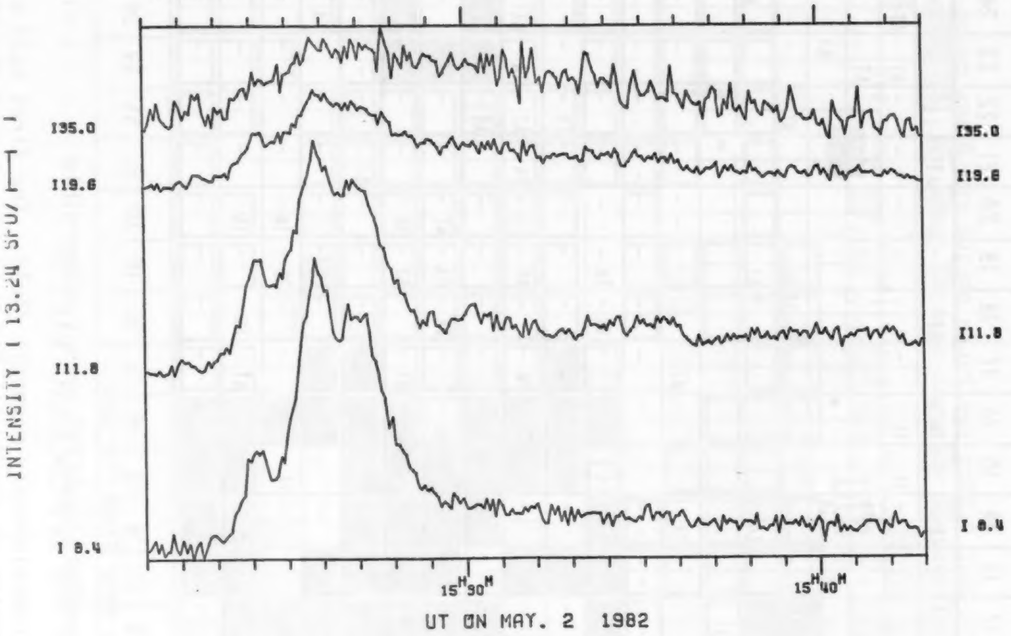
Day	Freq	Sta	Type		Start (UT)	Time of Maximum (UT)	Duration (Min)	Flux Density $(10^{-22}\ W/m^2\ Hz)$ Peak	Flux Density Mean	Int	Remarks
29	8800	ATHN	20	GRF	0609.8E	0612.0	5.7D	11.0			QL=5 ST=2 TYP=2
	2695	ATHN	20	GRF	0610.0E	0611.8	5.5D	11.0			QL=5 ST=2 TYP=2
	2695	MANI	3	S	0610.3	0612.0	3.7	11.4	3.8		
	2695	LEAR	4	S/F	0624.8	0627.6	8.8	11.0			QL=6 ST=2 TYP=3
	2695	MANI	3	S	0625.5	0628.6	4.5	13.7	4.6		
	8800	LEAR	4	S/F	0659.8	0701.0	3.3	8.0			QL=6 ST=2 TYP=3
	8800	LEAR	47	GB	0819.8	0820.0	1.5	50.0			QL=6 ST=2 TYP=5
	8400	BERN	4	S/F	0849.8	0851.7	7.0	326.0			
	8800	LEAR	47	GB	0850.0	0851.6	9.3	340.0			QL=6 ST=2 TYP=5
	8800	MANI	3	S	0850.0	0852.2	3.5	185.2	61.7		
	8400	BERN	1	S	0947.2	0948.5	3.5	23.0			
	8400	BERN	2	S/F	1012.0	1014.3	9.0	24.0			
	8800	SGMR	4	S/F	1026.8	1028.3	5.3	42.0			QL=6 ST=2 TYP=3
	2800	OTTA	21	GRF	1410.0	1530.0	130.0	2.4	1.2		
	2800	OTTA	1	S	1426.6	1426.8	1.0	2.4			
	8400	BERN	3	S	1654.5	1655.4	4.0	191.0			
	8800	PALE	47	GB	1654.6	1655.3	5.2	230.0			QL=6 ST=2 TYP=5
	8800	ATHN	47	GB	1654.6	1655.6	4.2	58.0			QL=6 ST=2 TYP=5
	8800	SGMR	47	GB	1654.8	1655.3	2.5	180.0			QL=6 ST=2 TYP=5
	2695	ATHN	4	S/F	1654.8	1655.6	8.0	24.0			QL=6 ST=2 TYP=3
	2695	PALE	8	S	1655.0	1655.3	1.1	39.0			QL=6 ST=2 TYP=3
	2695	SGMR	8	S	1655.0	1655.5	1.1	30.0			QL=6 ST=2 TYP=3
	2800	OTTA	3	S	1655.0	1655.5	4.0	40.0	12.0		
	2800	OTTA	29	PBI	1659.0	1659.0	40.0	3.4	1.6		
	8800	ATHN	47	GB	1712.8	1715.5	7.2	58.0			QL=6 ST=2 TYP=5
	2695	ATHN	47	GB	1713.1	1715.5	5.4	61.0			QL=6 ST=2 TYP=5
	2800	OTTA	21	GRF	2045.0	2058.0	55.0	12.6	4.2		
	2800	OTTA	3	S	2100.0	2101.0	2.0	14.2	4.8		
	8800	PALE	8	S	2100.6	2101.0	.5	40.0			QL=6 ST=2 TYP=3
	2695	SGMR	8	S	2100.8	2101.0	.3	19.0			QL=6 ST=2 TYP=3
	2800	OTTA	21	GRF	2147.0	2240.0	190.0	20.4	12.6		
	2800	OTTA	3	S	2200.5	2201.0	1.5	10.0	5.0		
	8800	SGMR	8	S	2200.6	2201.0	.5	27.0			QL=6 ST=2 TYP=3
	8800	PALE	8	S	2200.6	2201.0	.9	42.0			QL=6 ST=2 TYP=3
	2695	SGMR	8	S	2200.8	2201.0	.7	17.0			QL=6 ST=2 TYP=3
30	2695	LEAR	8	S	0115.1	0115.3	.7	10.0			QL=6 ST=2 TYP=3
	8800	LEAR	8	S	0115.1	0115.3	.9	11.0			QL=6 ST=2 TYP=3
	2695	PENT	1	S	0115.2	0115.5	1.5	8.8	3.0		
	2695	ATHN	47	GB	0331.8	0333.3	11.3	230.0			QL=5 ST=2 TYP=5
	8800	ATHN	47	GB	0332.3	0333.3	10.3	130.0			QL=5 ST=2 TYP=5
	2695	PALE	47	GB	0336.5	0338.1	7.3	239.0			QL=6 ST=2 TYP=5
	8800	PALE	47	GB	0337.0	0337.8	5.8	260.0			QL=6 ST=2 TYP=5
	2695	LEAR	47	GB	0337.6E	0338.0	7.2D	230.0			QL=2 ST=2 TYP=5
	2695	MANI	3	S	0338.0	0339.8	7.0	245.7	81.9		
	8800	MANI	3	S	0338.4	0339.6	3.6	168.0	56.0		
	8800	LEAR	4	S/F	0340.0E	0340.1	4.5D	49.0			QL=2 ST=2 TYP=3
	8800	LEAR	47	GB	0408.3	0409.6	4.2	76.0			QL=6 ST=2 TYP=5
	8800	PALE	47	GB	0409.1	0409.6	1.2	70.0			QL=6 ST=2 TYP=5
	8800	LEAR	4	S/F	0551.8	0555.1	6.0	26.0			QL=6 ST=2 TYP=3
	2695	LEAR	4	S/F	0551.8	0555.1	12.2	30.0			QL=6 ST=2 TYP=3
	2695	ATHN	4	S/F	0552.3	0555.1	7.8	27.0			QL=6 ST=2 TYP=3
	8800	ATHN	4	S/F	0552.5	0555.1	5.6	27.0			QL=6 ST=2 TYP=3
	8400	BERN	1	S	0554.4	0555.2	3.0	37.0			
	2695	MANI	3	S	0556.0	0556.8	2.0	25.7	8.6		
	8400	BERN	3	S	1013.7	1014.9	5.0	107.0			
	2695	SGMR	8	S	1014.1	1014.6	1.2	20.0			QL=6 ST=2 TYP=3
	8800	SGMR	8	S	1014.6	1014.6	.7	28.0			QL=6 ST=2 TYP=3
	2800	OTTA	260	FAL	1130.0	1300.0	90.0	-6.2	-3.6		
	2800	OTTA	1	S	1932.0	1932.5	1.5	3.6	1.8		
31	2695	LEAR	47	GB	0309.0	0310.0	3.8	130.0			QL=6 ST=2 TYP=5
	8800	LEAR	4	S/F	0309.1	0310.1	3.2	40.0			QL=6 ST=2 TYP=3
	2695	PALE	47	GB	0309.5	0310.0	2.0	110.0			QL=6 ST=2 TYP=5
	2695	MANI	3	S	0309.5	0310.4	3.5	115.6	38.5		
	8800	PALE	8	S	0309.6	0310.1	1.0	39.0			QL=6 ST=2 TYP=3
	8800	MANI	3	S	0309.6	0310.4	2.0	51.9	17.3		
	2800	OTTA	20	GRF	1300.0	1435.0	190.0	6.6	2.8		
	2800	OTTA	1	S	1851.5	1853.0	3.0	2.0	1.0		
	2800	OTTA	22	GRF	2015.0	2115.0	105.0	2.0	1.0		

SELECTED SOLAR NOISE BURSTS

MAY 2 - 29, 1982

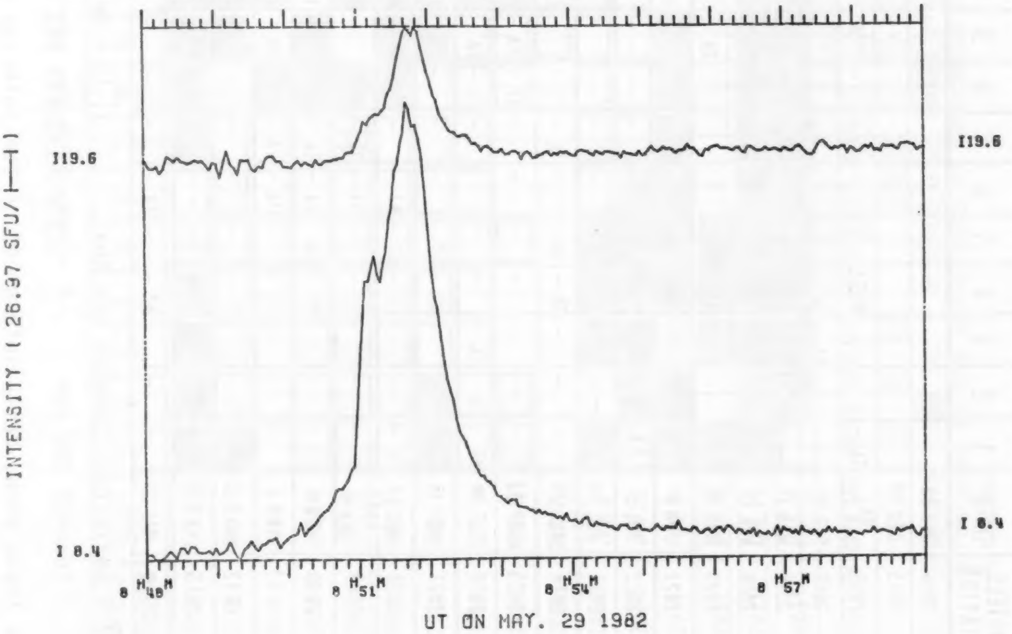
INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERN, SWITZERLAND

INTEGRATION TIME= 5000 MS



INSTITUTE OF APPLIED PHYSICS, UNIVERSITY OF BERN, SWITZERLAND

INTEGRATION TIME= 2500 MS



INFERRED IP MAGNETIC FIELD

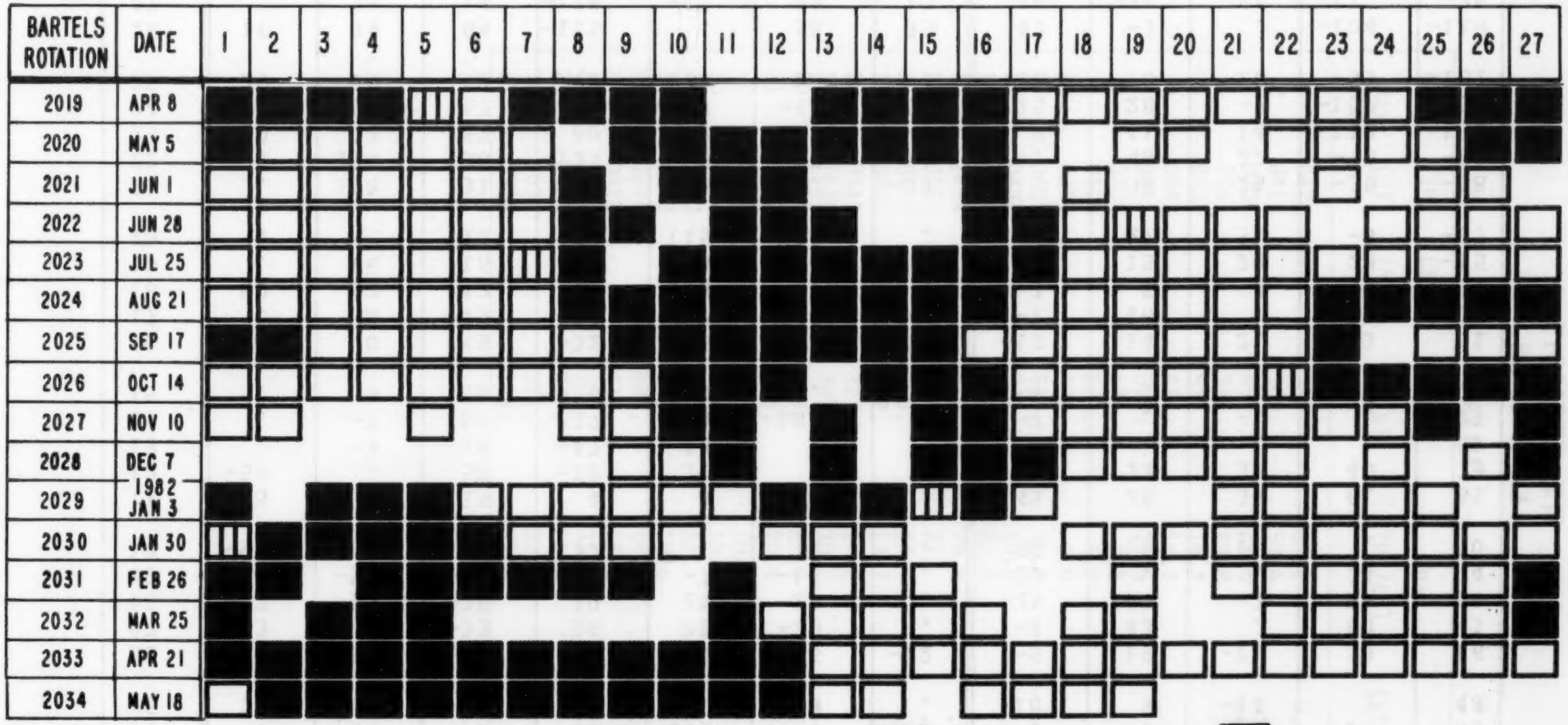
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
2014	NOV 29				-					-	-				TA		TA TA		AT	-		AT			-		TA	
2015	DEC 26									-	-				-	TA -	TA -	-	-	-	-	-	-	AT	AT	-	-	-
2016	1981 JAN 22	TA -			AT T*		-		-	AT	TA				TA					-				AT				TA
2017	FEB 18			AT	TA									TA	TA		*							AT		TA		TA
2018	MAR 17							AT						-					TA				AT	-	-		TA	AT
2019	APR 13	TA	-	-	-						-				TA				*	AT	-		-		- AT		-	-
2020	MAY 10	- -	- -	- TA	AT	TA		-		TA			TA									*	*					
2021	JUN 6		*								AT				TA			AT		-	- -	- -	-	-	-	-	-	-
2022	JUL 3	-	-	-	-	-	- -	-	- -	- -	-	-	- -	- -	- -	- -	-	-	-	-	-	- -	- -	- -	- -	- -	-	-
2023	JUL 30	-	- -	- -	-	-	-	-	- -	-	-	-	-	-	-	- -	- -	-	TA -	TA -	- -	-	-	-	-	AT -	- -	-
2024	AUG 26	- -	-	-	TA -	TA -	-	TA -	-	-	TA -	-	-	-	-	TA -	-	TA -	-	-	-	-	TA -	-	-	-	-	-
2025	SEP 22	-	-	-	-	-	-	-	AT -	TA -	-	-	-	TA -	-	TA -	TA -	TA -	-	AT -	-	TA -	AT -	TA -	AT -	TA -	TA -	TA -
2026	OCT 19	AT -	TA -	TA -	-	-	-	-	TA -	TA -	-	TA -	-	-	-	-	TA -	-	-	-	-	-	AT -	TA -	-	-	-	-
2027	NOV 15	-	-	-	AT -	AT -	-	-	-	-	AT -	-	-	-	-	-	TA -	-	TA -	TA -	AT -	-	-	-	-	-	AT -	-
2028	DEC 12	TA -	-	-	-	AT -	AT -	-	-	AT -	TA -	-	-	-	-	-	-	AT -	-	AT -	TA -	-	-	-	-	TA -	-	- -
2029	1982 JAN 8	-	-	-	-	-	TA -	TA -	-	-	-	-	-	-	TA -	-	-	TA -	-	-	-	AT -	-	- -	- -	AT -	-	-
2030	FEB 4	-	-	-	TA -	TA -	TA -	TA -	-	-	TA -	-	-	-	-	-	TA -	-	-	-	-	-	-	-	TA -	-	-	TA -
2031	MAR 3	-	-	-	-	-	TA -	TA -	-	TA -	TA -	-	TA -	-	-	TA -	-	-	-	TA -	TA -	-	-	-	-	-	-	AT -
2032	MAR 30	-	TA -	-	TA -	-	-	-	-	-	-	TA -	-	-	- -	-	-	AT -	TA -	-	TA -	-	-	-	-	-	-	-
2033	APR 26	- -	AT -	-	-	-	- -	-	TA -	TA -	-	-	-	-	- -	-	-	-	-	-	-	-	-	-	-	AT -	AT -	-
2034	MAY 23	-	-	-	AT -	- -	TA -	-	-	-																		

▒ = definitely towards the sun ☐ = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day. The Thule magnetometer ceased operating in August 1981.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: [open box] = FIELD >2μT, [hatched box] = -2μT ≤FIELD ≤2μT, [filled box] = FIELD <-2μT
No box visible indicates no data available for that day.

NOTE: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the Sun that affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

Day	JUNE 1981	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	JAN. 1982	FEB.	MARCH	APRIL	MAY
01	16	53	-49	-134	-27	94	41	15	-20	-19	.	-6
02	21	49	.	-87	11	82	34	-6	-44	-9	.	-6
03	17	41	-72	-56	70	55	49	-17	-29	-20	.	23
04	6	14	-80	-21	104	-1	-3	.	-3	-39	-17	43
05	28	-17	-67	-7	115	-19	.	-10	9	-44	3	48
06	33	-62	-48	11	104	-36	-12	-5	19	-21	38	16
07	3	.	-33	26	28	-29	.	-4	43	.	60	41
08	-27	-93	-26	30	25	-23	.	25	64	-2	57	69
09	.	-56	-19	33	-7	-16	.	23	.	.	24	74
10	-96	-43	-7	32	.	11	.	36	15	16	.	70
11	-75	.	16	4	8	34	.	45	24	34	61	65
12	-58	.	58	-29	32	.	.	35	33	35	46	79
13	.	-9	68	-47	43	.	.	16	.	.	.	82
14	.	-7	81	-37	64	105	.	-7	.	.	.	77
15	.	9	68	-24	103	.	57	-6	.	.	86	72
16	-3	0	49	-32	115	.	17	-12	14	21	93	51
17	.	38	49	-24	167	48	-5	-1	16	.	71	38
18	50	59	42	-8	218	3	.	-3	5	4	46	27
19	.	66	16	11	193	-28	-37	33	15	20	28	-15
20	.	.	12	85	115	-45	.	.	27	31	-6	-57
21	.	108	31	135	65	.	-39	.	38	25	-38	-68
22	.	107	38	124	9	-65	-11	.	48	22	-78	-93
23	59	73	52	60	-62	.	-2	9	41	14	-113	-132
24	.	34	67	6	-107	-43	35	25	28	-2	-107	-158
25	29	29	92	-79	-128	-20	4	35	10	-26	-93	-151
26	18	34	64	-115	.	58	39	42	-3	.	-104	-118
27	.	28	15	-138	-61	83	17	36	-34	-61	-117	-26
28	44	33	-12	-144	-60	96	29	.	.	-56	-122	-26
29	62	43	-64	-121	-19	59	.	15		-53	-77	-10
30	50	38	-84	-75	67	55	24	0		.	-26	19
31		1	-143		87		.	-10		.		46

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

PIONEER XII
Solar Wind

MAY 1982

DATE May '82	TIME (UT)	ESV (°)	U_{H+} (km/s)	N_{H+} (H^+/cc)	T_{H+} ($x10^6$ K)
1	0428	061.	350.	52.8	0.02
2	0413		309.	52.4	.039
3	0304		460.	27.5	.324
4	0357		386.	29.8	.171
5	0431		520.	16.2	.35
6	0543		414.	19.7	.074
7	0611		594.	14.5	.591
8	0306		685.	3.5	.148
9	0508		592.	6.2	.209
10	0353		525.	6.9	.202
11	0305		416.	12.6	.075
12	0431		381.	19.8	.09
13	0549		318.	84.5	.019
14	1454		319.	29.8	.075
15	0453	069.	348.	21.	.089
16	0417		323.	17.	.035
17	0221		392.	13.7	.331
18	0311		321.	17.2	.11
19	1539		387.	30.5	.209
20	0410		423.	21.4	.143
21	0357		495.	20.4	.33
22	0502		458.	20.	.135
23	0447		507.	15.4	.203
24	0240		517.	11.	.202
25	0253		468.	10.6	.078
26	0624		481.	14.3	.147
27	0413		414.	16.5	.171
28	1524		300.	33.	.021
29	0523		317.	26.8	.057
30	0533		321.	31.6	.077
31	0333		299.	101.5	.039

DOT SYMBOL ENTRY INDICATES NO DATA AVAILABLE FOR THE DAY.

BOULDER GEOMAGNETIC SUBSTORM LOG

DATE	ONSET TIME	DIR	COMMENTS
05/01			Field intermittently active.
	0735	≈ center	
	1055	West	Numerous minor injections follow.
	1515		Localized SS College to Ft. Yukon.
	1640		Moderate SS
05/02			Field active.
	0155	East	
	0450	East	
	0855	≈ center	
	1245	West	Numerous injections follow with recovery near 1730 UT.
	1805		Moderate SS
05/03			Minor storm conditions all day.
	0455	East	Initial injection at Lynn Lake, secondary injection at 0530 UT.
	1045	West	Numerous minor injections with recovery near 1430 UT.
	1545	West	Numerous minor injections with recovery near 1930 UT.
05/04	1010	West	Moderate SS
	1440	West	
05/05	0350	East	
	0720	≈ center	Several injections.
	1450		Weak SS
05/06			Field intermittently unsettled.
	0735	West	
05/07			Field intermittently unsettled.
	1205		Weak SS College to Ft. Yukon.
05/08			Field intermittently unsettled.
	1005		Weak SS
	1055		Weak SS
05/09			Field intermittently unsettled.
	0620		Localized SS vicinity Lynn Lake.
05/10			Field intermittently unsettled.
	1240		Weak SS
05/11	0450	East	Weak SS
	1010	West	
05/12			Field intermittently unsettled.
	0545	East	
05/13			Field intermittently unsettled.
	0810		Weak SS
05/14			Field intermittently unsettled.
	1200		Weak SS
05/15			Field unsettled all day.
	0210		Negative Bay H-component Boulder-Tucson.
	1100	West	
	1335	West	
05/16			Field unsettled all day.
	0825	East	
	0915	West	
05/17			Field intermittently unsettled.
	0305	East	Boulder in partial Ring Current Sector.
	0805	West	Several injections with recovery near 1200 UT.
	1400	West	
	1445	West	
05/18			Field unsettled all day.
	0425	East	
	0515	East	
	0945	West	Strong SS, several injections with recovery near 1300 UT.
05/19			Field unsettled all day.
	0200		Positive Bay D-component Boulder-Tucson only.
	0320	East	Weak SS
	0950	West	Weak SS
	1400	West	Weak SS
05/20			Field intermittently unsettled.
	0830	West	
	1315		Weak SS, Norman Wells to Inuvik.
05/21			Field intermittently unsettled.
	0525		Weak SS, several minor injections with recovery near 1000 UT.
	1140		Weak SS, several minor injections with recovery near 1500 UT.
05/22			Field slightly unsettled.
	0835		Weak SS
05/23			Field slightly unsettled.
05/24			Field slightly unsettled.
	1235		SS along oval only.
05/25			Field intermittently unsettled.
05/26			Field unsettled.
	1420		Slow onset; separate localized SS at 1515 UT, Norman Wells to Inuvik. Field active at Polar cap and mid/low latitude stations after 1800 UT.
05/27			Field strongly active after 0500 UT.
	0530	East	
	0805	East	
	0905	West	
	1305	West	
	1435	West	
	1635		Localized SS Norman Wells to Inuvik.
05/28			Field active.
	0950		Localized SS vicinity College.
	1130	West	
	1250	West	
	1420	West	
05/29			Field active.
	0450	≈ center	
	0805	West	
	0830		Localized injection into existing SS, Norman Wells to College.
	1155	West	Slow onset, numerous injections with recovery near 1700 UT.
05/30			Field intermittently active.
	0745	East	Numerous injections follow, through 1800 UT, with temporal and spatial variations among the network stations.
05/31			Field intermittently active.
	0605	West	
	0810		Localized SS vicinity College.
	1125		Localized SS vicinity College

APRIL 1982 DATA

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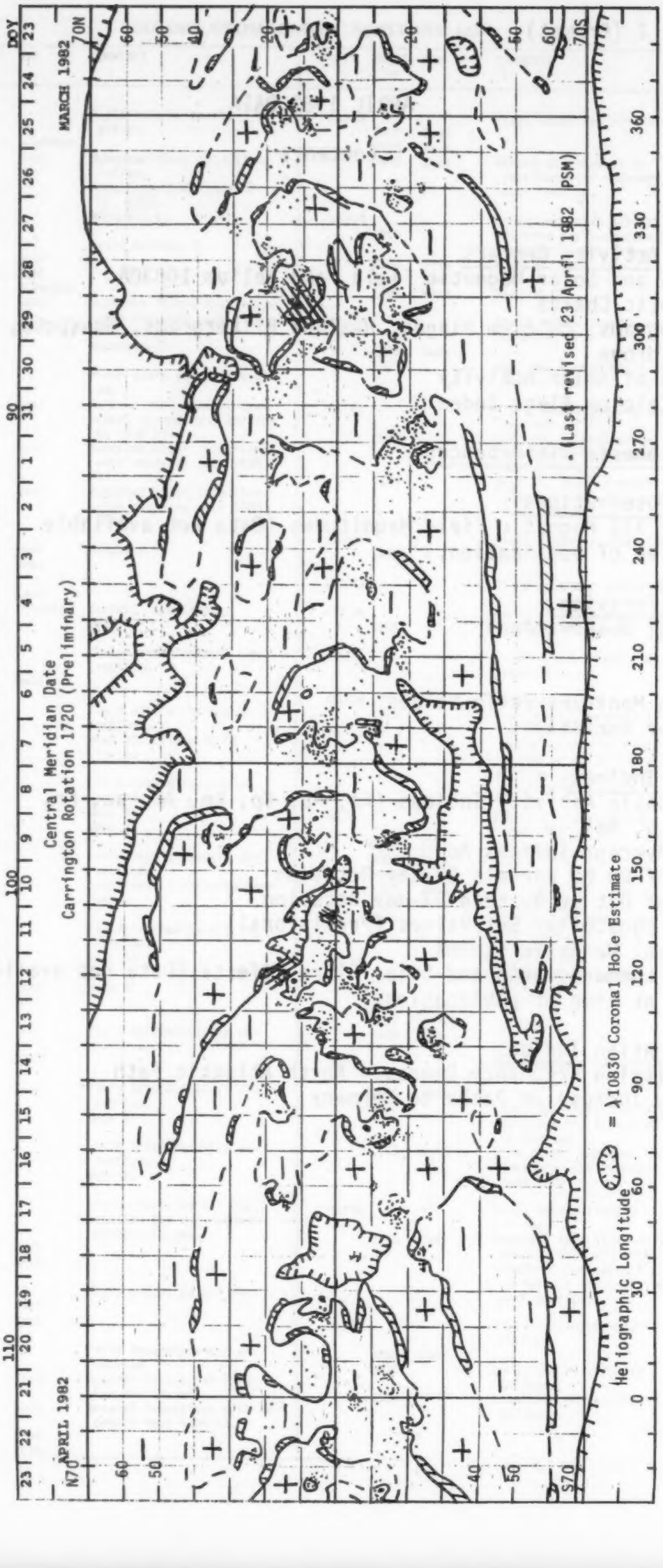
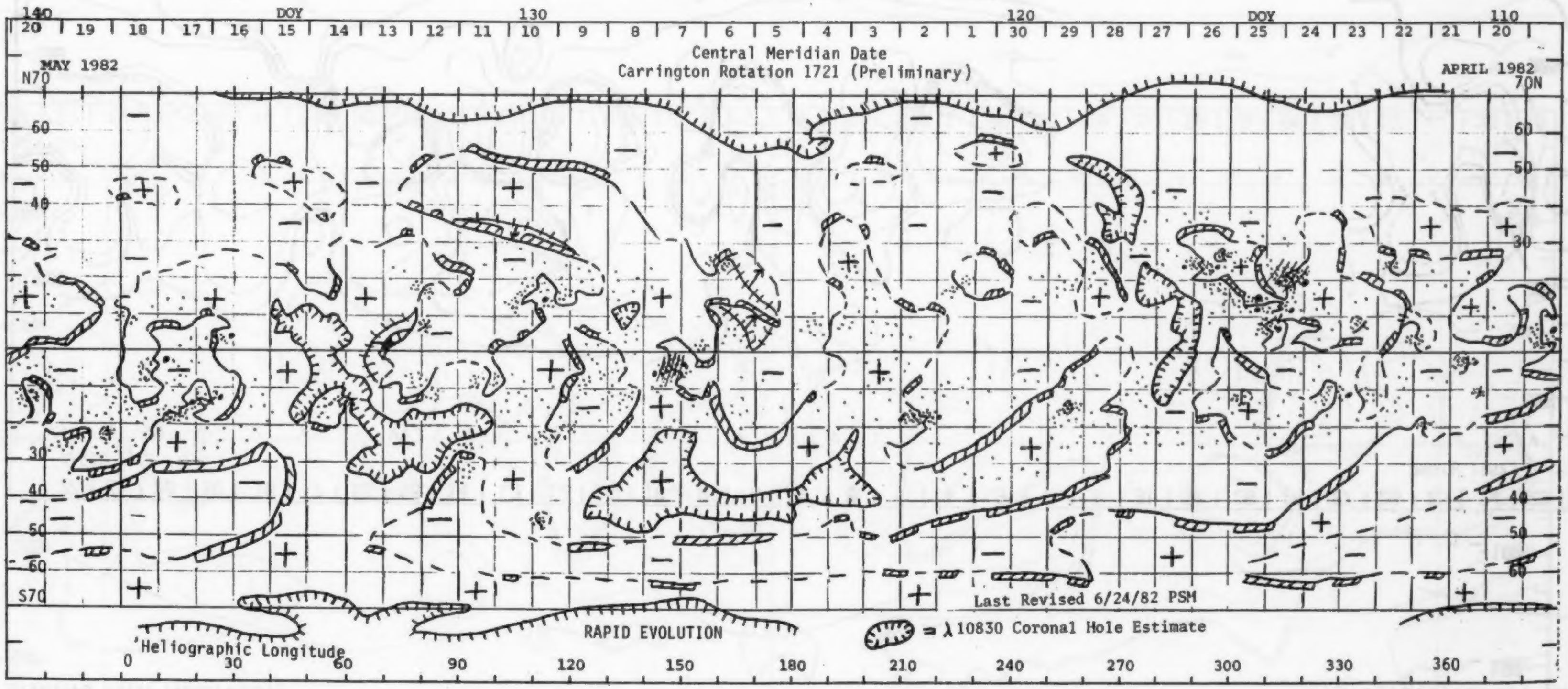
Hα SYNOPTIC CHART

CARRINGTON ROTATION 1720 (PRELIMINARY)



Hα SYNOPTIC CHART

CARRINGTON ROTATION 1721 (PRELIMINARY)

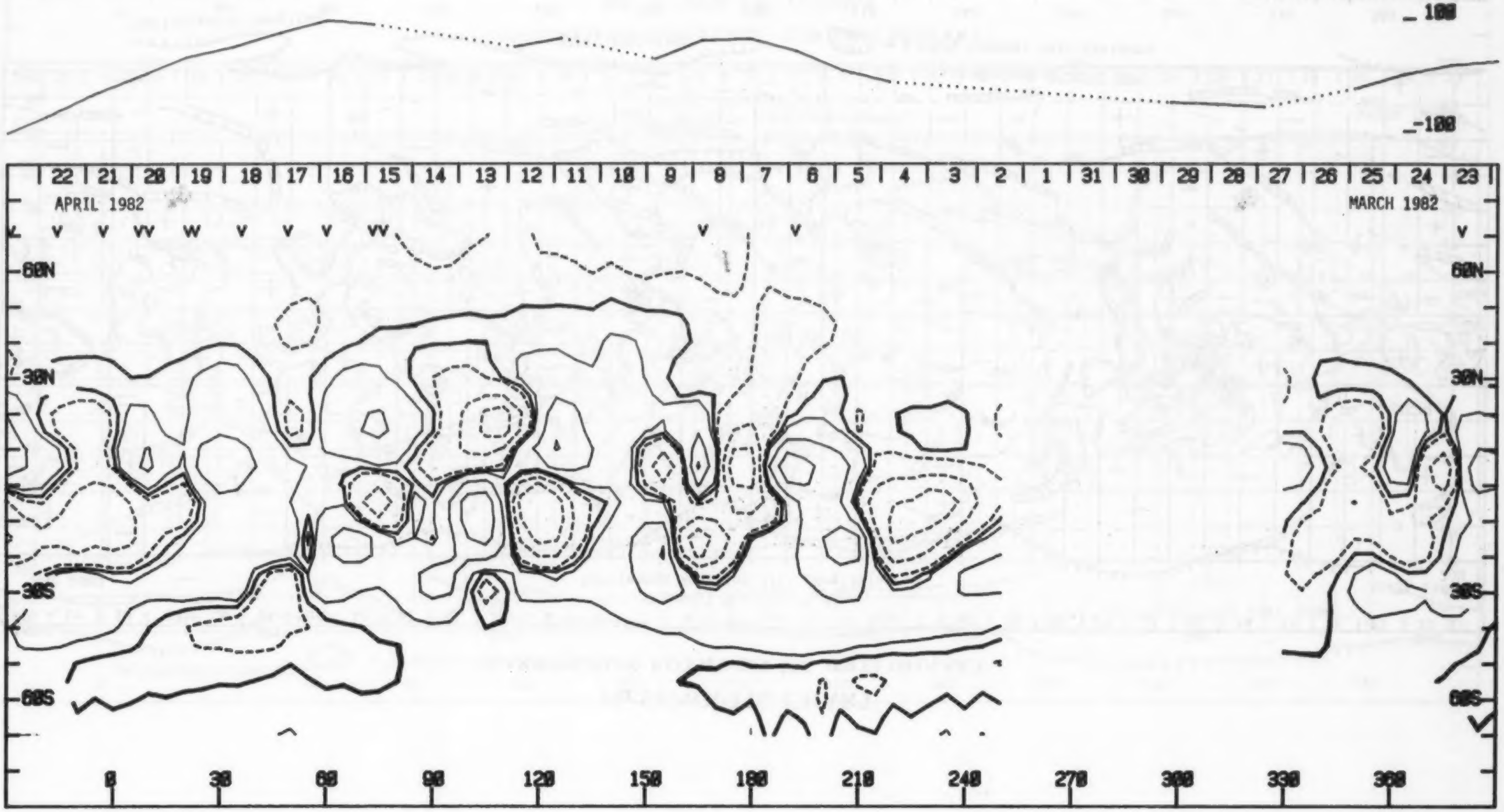


SOLAR MAGNETIC FIELD SYNOPTIC CHART

CARRINGTON ROTATION 1720

Stanford Solar Observatory

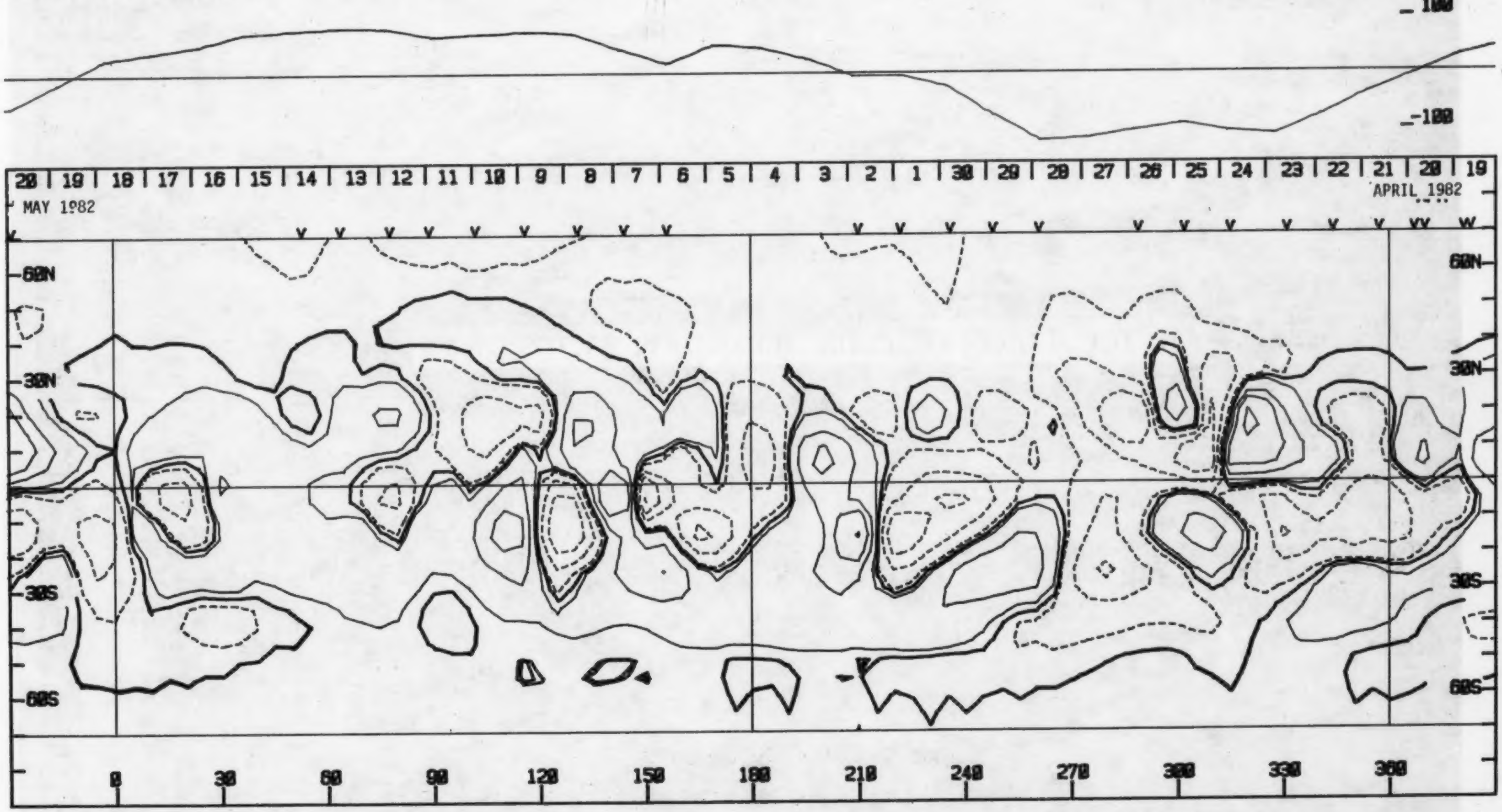
0, ±100, 200, 500... μT

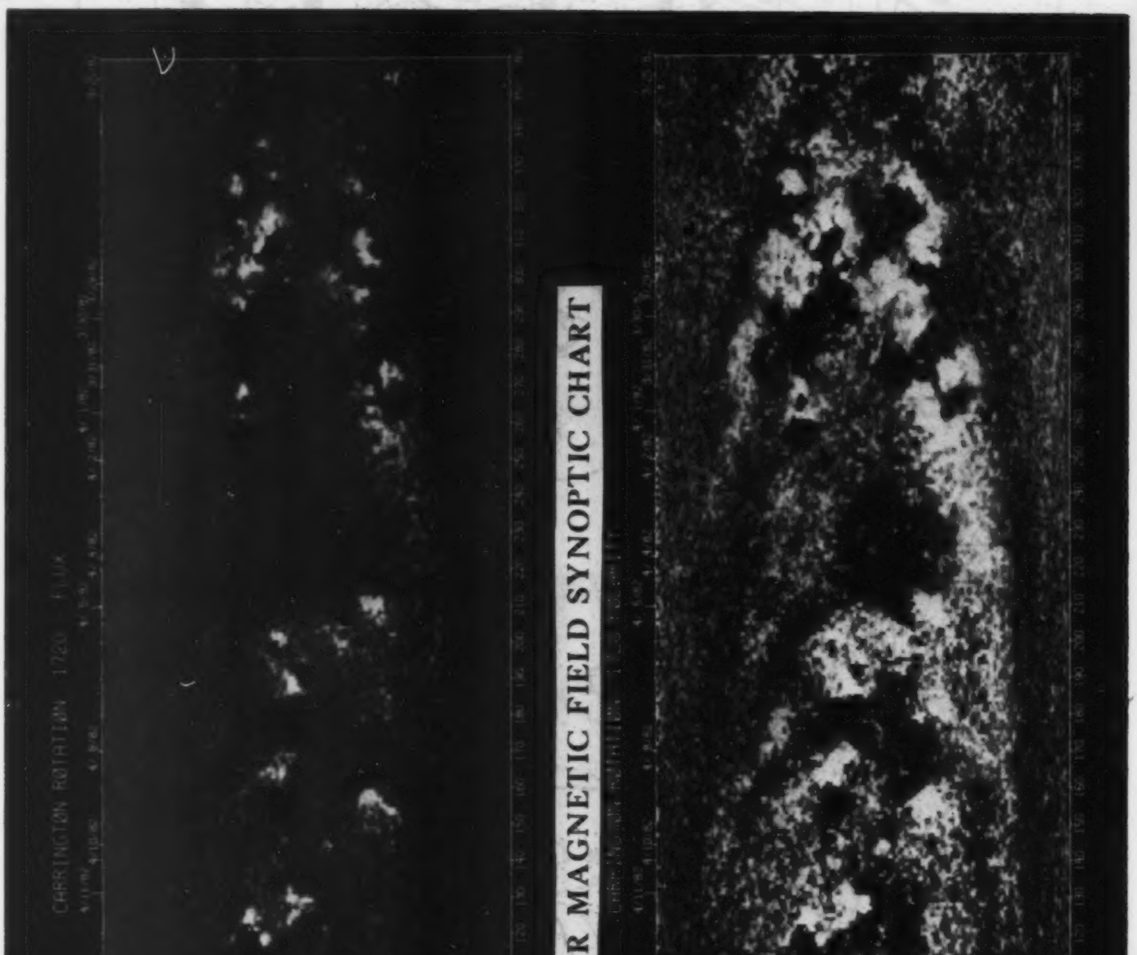


SOLAR MAGNETIC FIELD SYNOPTIC CHART
CARRINGTON ROTATION 1721

Stanford Solar Observatory

0,±100,200,500... μT

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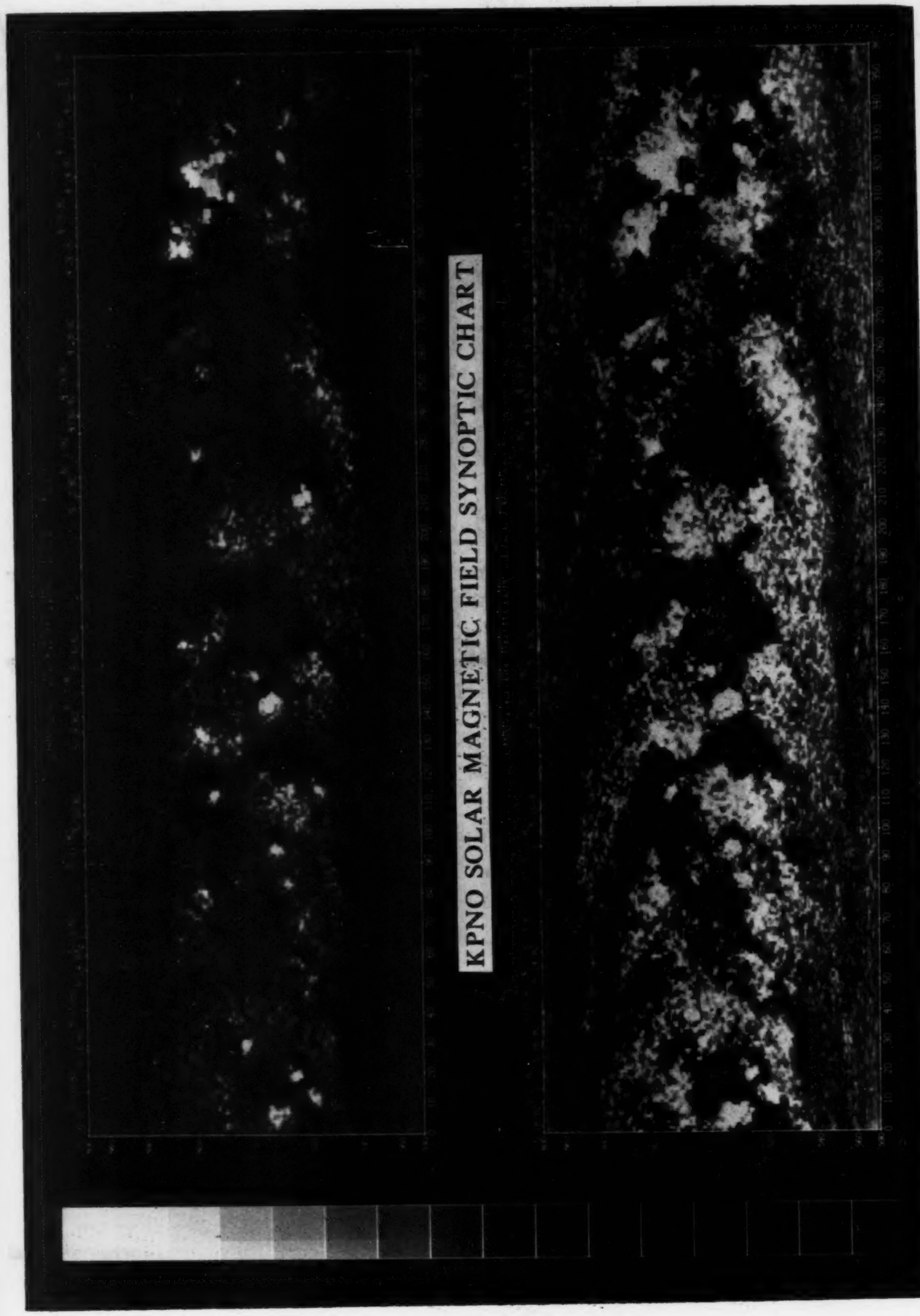
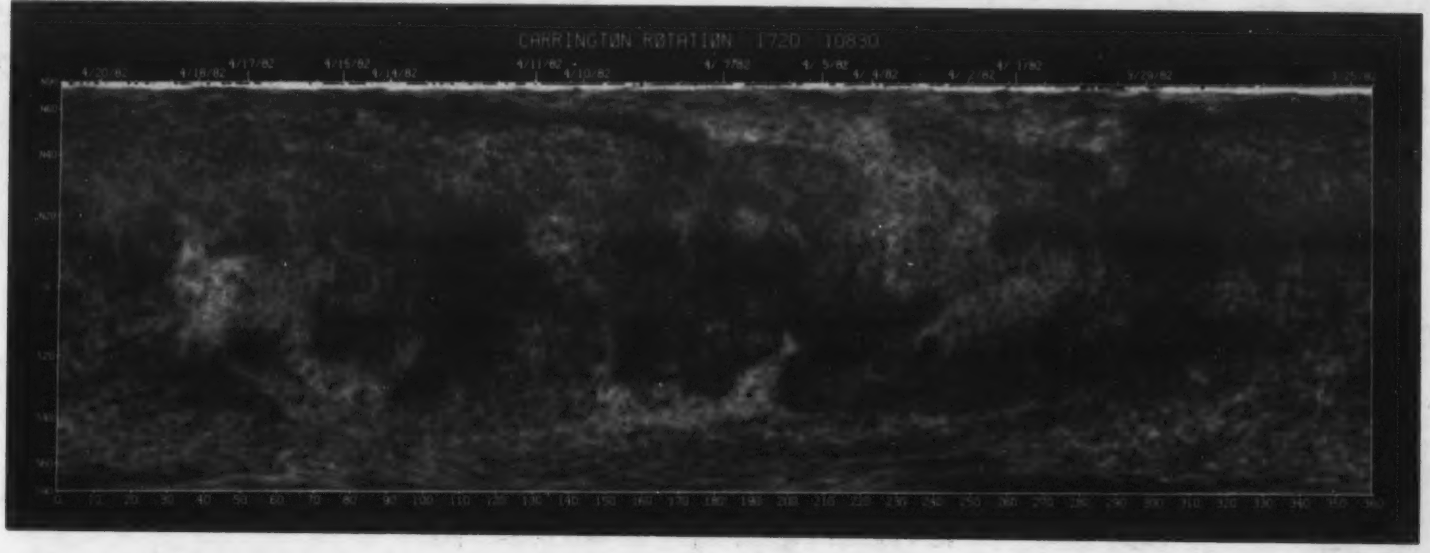

KPNO SOLAR MAGNETIC FIELD SYNOPTIC CHART

HELIUM 10830Å SYNOPTIC MAPS
CARRINGTON ROTATION 1720

KITT PEAK NATIONAL OBSERVATORY



HELIUM 10830Å SYNOPTIC MAPS
CARRINGTON ROTATION 1721

KITT PEAK NATIONAL OBSERVATORY

APRIL 1, 1982 (P=-26.19, B_o=-6.54, L_o=271.35)

SACRAMENTO PEAK Np CORONA 5303 Å

NO DATA APRIL 1,3,6,7,9,12,13,14,17,19,21,22,
23,24,26,27,29,30

E W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E W

1452 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA APRIL 1,5,6,8,9,10,11,12 W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

01

BOULDER Hα

Np

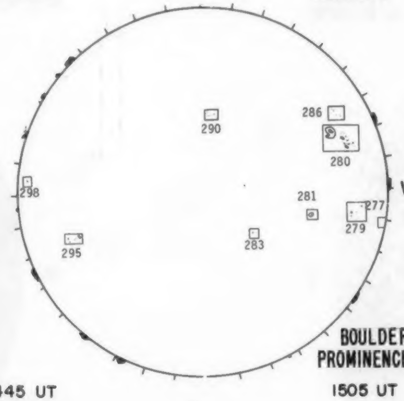
E W

1505 UT

Sp

BOULDER SUNSPOTS

Np

E  W

1445 UT

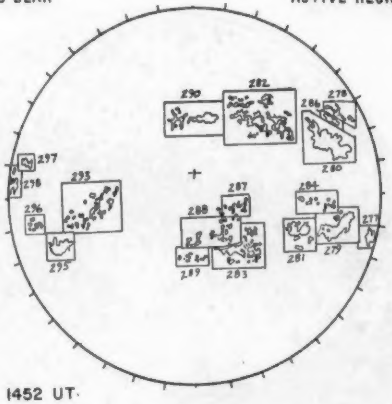
Sp

BOULDER PROMINENCES

1505 UT

BIG BEAR ACTIVE REGIONS

Np

E  W

1452 UT

Sp

V POOR	WM
79-	2300-2.5
80-	3700-3.5
81-	1600-2.5
83-	1800-2.5
90-	1200-2.5
95-	1600-3.5
98-	1300-2.5

STANFORD

Np

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

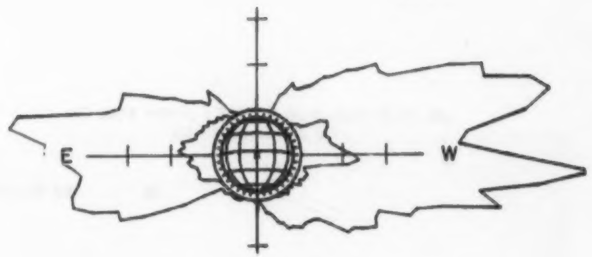
E NO DATA APRIL 1,2,3,4,5,6,9,10,11,12,13,14,25,27,28,29 W

Levels
0 μT
± 50
±100
±200

Sp

APRIL 2, 1982 (P=-26.23, B_o=-6.49, L_o=258.15)

SACRAMENTO PEAK — CORONA 5303 Å



1.15 $R_\odot$ 1928 UT
1.35 $R_\odot$ 1919 UT
1.55 $R_\odot$

Sp

KITT PEAK — MAGNETOGRAM
Bright-Plus
Dark - Minus

Np

E

W

1441 UT

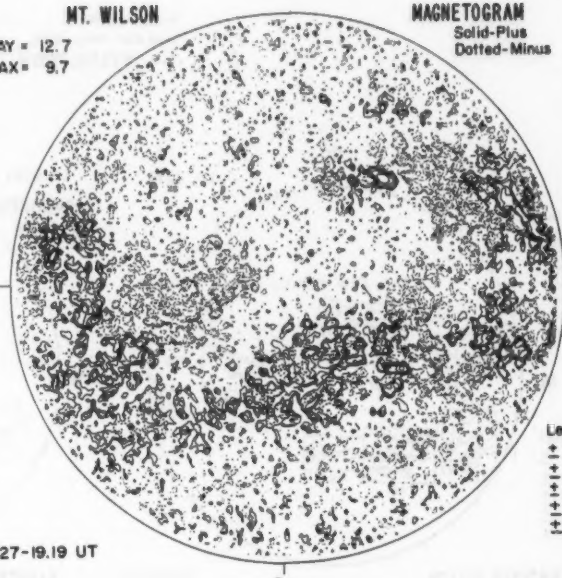
Sp

MT. WILSON — MAGNETOGRAM
Solid-Plus
Dotted-Minus

Np

DELTAY = 12.7
DELTAX = 9.7

E



W

Levels
± 5
± 10
± 20
± 40
± 80

18.27-19.19 UT

Sp

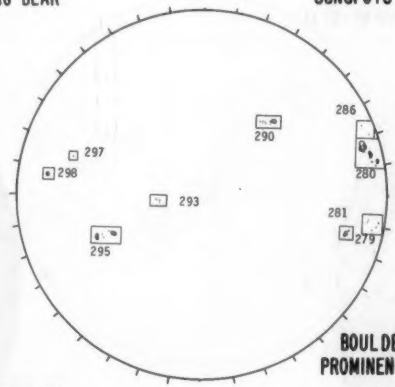
02

SACRAMENTO PEAK Np Hα

E W

1810 UT Sp

BIG BEAR Np SUNSPOTS

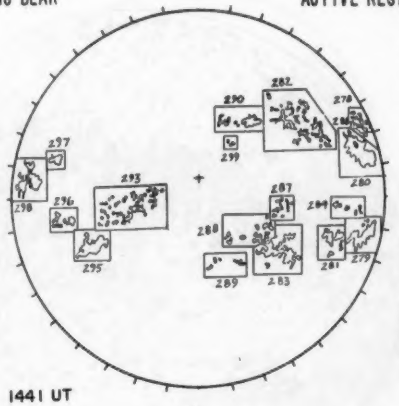
E  W

2035 UT Sp

BOULDER PROMINENCES

NO DATA

BIG BEAR Np ACTIVE REGIONS

E  W

1441 UT Sp

FAIR	WH
79-	2400-2.5
80-	3800-4.0
83-	1700-2.5
90-	1100-2.5
95-	1800-3.5
96-	0500-2.5
97-	0500-2.5
98-	2500-2.5

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

E NO DATA W

Levels
0 μT
± 50
±100
±200
•
•
•

Sp

APRIL 3, 1982 ($P=-26.26$, $B_o=-6.43$, $L_o=244.96$)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

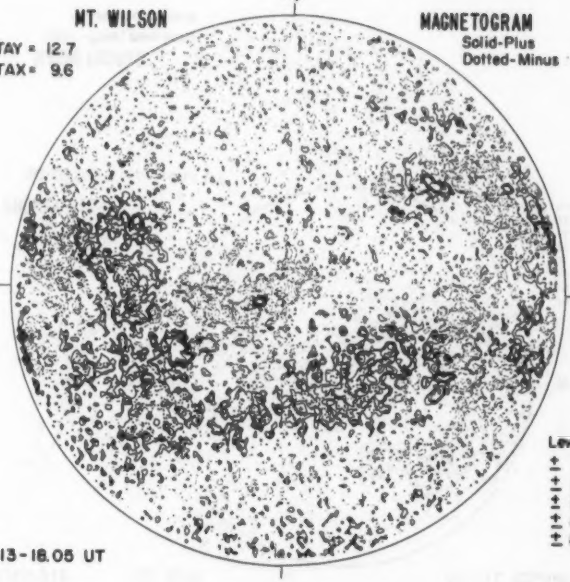
E W

1938 UT

Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6

E  W

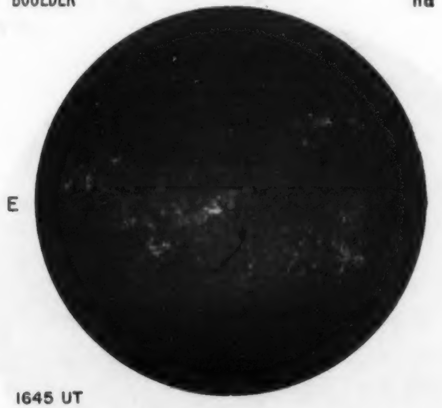
Levels
± 5
± 10
± 20
± 40
± 80

17.13-18.05 UT

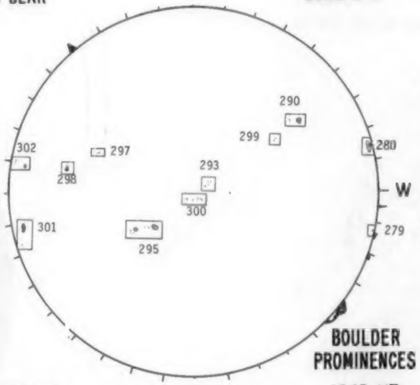
Sp

03

BOULDER — Hα — 1645 UT

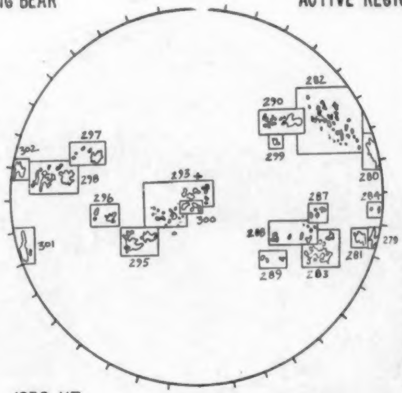


BIG BEAR — SUNSPOTS — 2155 UT



BOULDER PROMINENCES
1645 UT

BIG BEAR — ACTIVE REGIONS — 1938 UT



V POOR	WM
79-	1000-2.5
80-	2500-3.5
81-	1000-2.5
83-	1700-2.5
90-	1100-2.5
95-	1500-3.5
97-	0500-2.5
98-	2500-2.5
01-	2400-3.5
02-	1800-2.5

STANFORD — MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Np

E — NO DATA — W

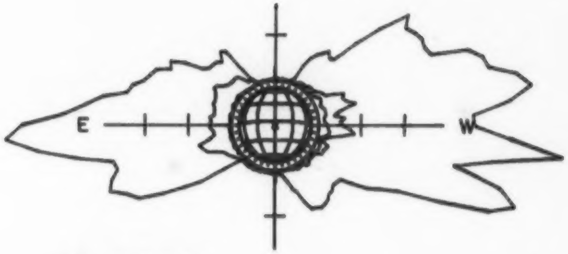
Sp

Levels
0 μT
± 50
±100
±200
•
•
•

APRIL 4, 1982 (P=-26.29, B_o=-6.37, L_o=231.76)

SACRAMENTO PEAK

CORONA
5303 Å

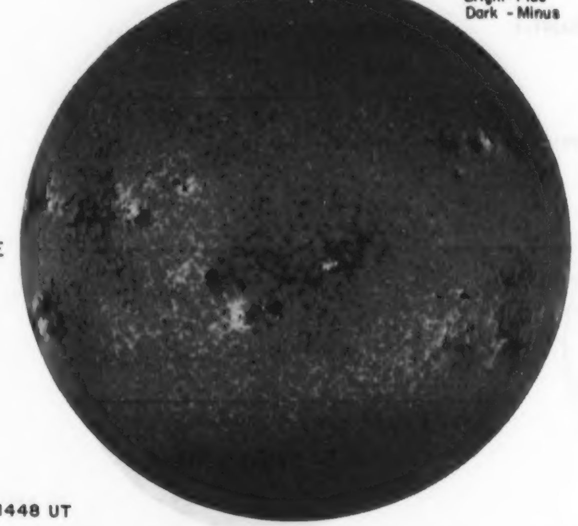


1.15 $R_\odot$ 1436 UT
1.35 $R_\odot$ 1416 UT
1.55 $R_\odot$ 1426 UT

Sp

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

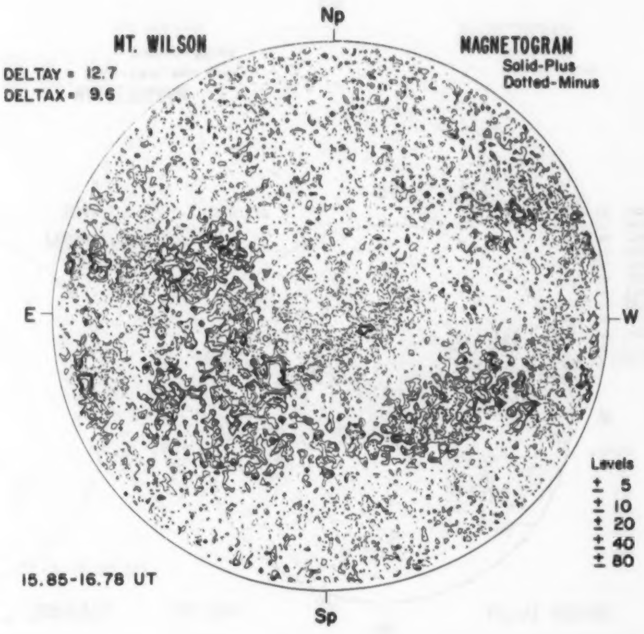


1448 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6

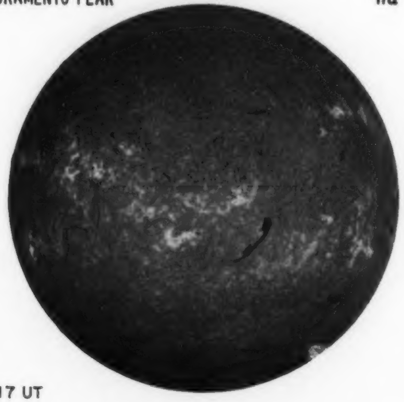


Levels
± 5
± 10
± 20
± 40
± 80

15.85-16.78 UT

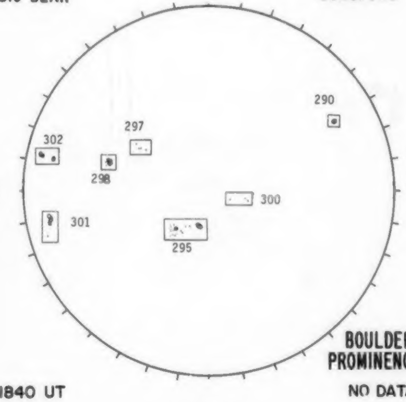
04

SACRAMENTO PEAK — Np — Hα

E  W

1517 UT — Sp

BIG BEAR — Np — SUNSPOTS

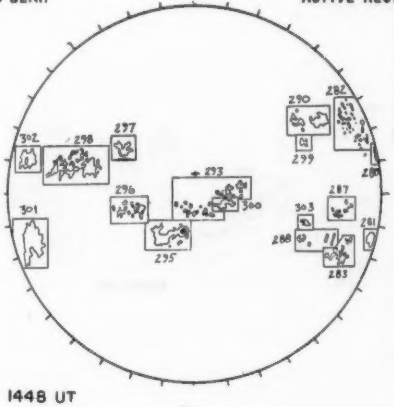
E  W

1840 UT — Sp

BOULDER PROMINENCES

NO DATA

BIG BEAR — Np — ACTIVE REGIONS

E  W

GOOD	WM

90- 1500-3.0
95- 1500-3.0
97- 0500-2.5
98- 2100-2.5
01- 3000-3.5
02- 1800-2.5

1448 UT — Sp

STANFORD — Np — MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

E — NO DATA — W

Levels
0 μT
± 50
± 100
± 200
⋮

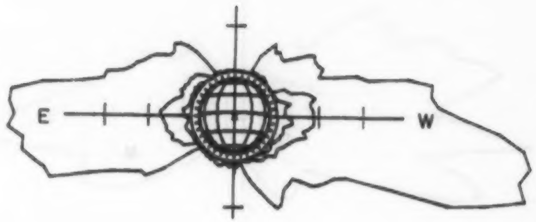
Sp

APRIL 5, 1982 (P=-26.31, B_o=-6.31, L_o=218.57)

SACRAMENTO PEAK

CORONA
5303 Å

Np



1.15 $R_\odot$ 1615 UT
1.35 $R_\odot$ 1554 UT
1.55 $R_\odot$ 1604 UT

Sp

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

Np

E

NO DATA APRIL 5,9,13

W

Sp

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

Np

E

NO DATA

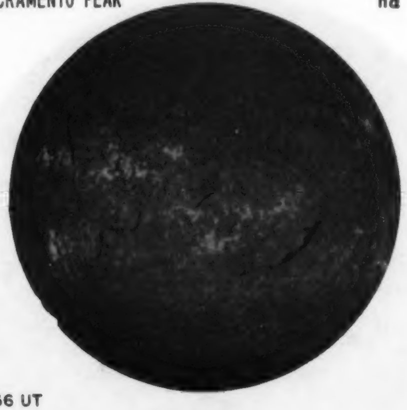
W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

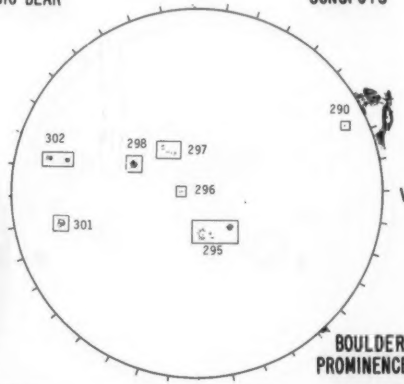
05

SACRAMENTO PEAK Hα



1436 UT

BIG BEAR SUNSPOTS

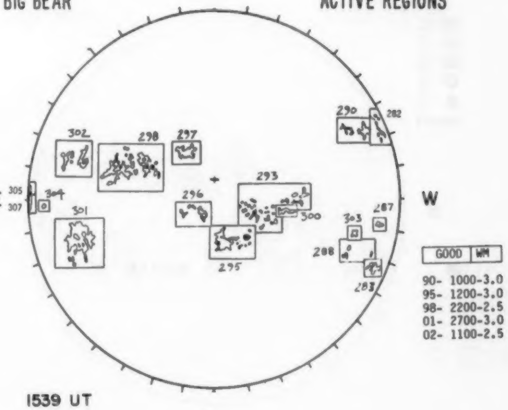


BOULDER PROMINENCES

1720 UT

1545 UT

BIG BEAR ACTIVE REGIONS



1539 UT

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np

E NO DATA W

Sp

Levels
0 μT
± 50
±100
±200

APRIL 6, 1982 (P=-26.32, B_o=-6.25, L_o=205.37)

SACRAMENTO PEAK — CORONA 5303 Å

Np

E — NO DATA — W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK — MAGNETOGRAM
Bright-Plus
Dark - Minus

Np

E W

1825 UT

Sp

MT. WILSON — MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

Np

E — NO DATA — W

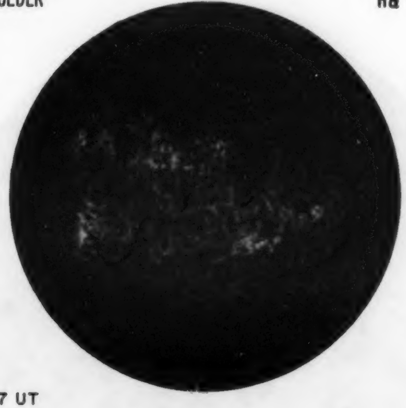
Levels
± 5
± 10
± 20
± 40
± 80

Sp

06

BOULDER Hα

Np

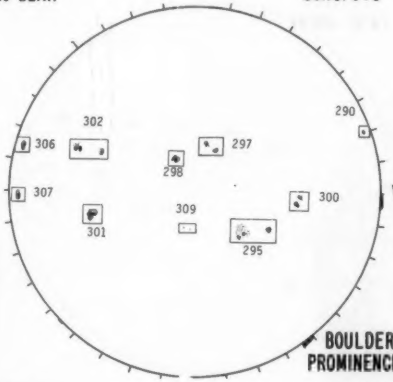
E  W

1717 UT

Sp

BIG BEAR SUNSPOTS

Np

E  W

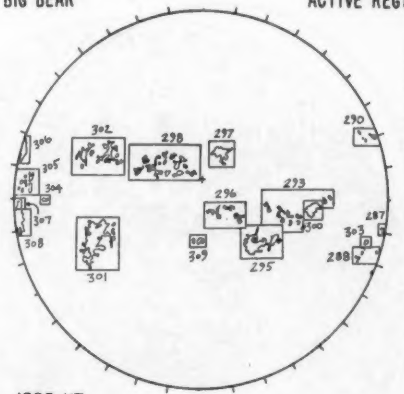
BOULDER PROMINENCES

1740 UT 1717 UT

Sp

BIG BEAR ACTIVE REGIONS

Np

E  W

POOR	WM
95-	1200-3.0
98-	2200-2.5
01-	2500-3.0
02-	1300-2.5
06-	1200-2.5
08-	1800-3.5

1825 UT

Sp

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np

E NO DATA W

Sp

Levels
0 μT
± 50
±100
±200
•
•
•

APRIL 7, 1982 ($P=-26.32$, $B_o=-6.19$, $L_o=192.18$)

SACRAMENTO PEAK | Np | CORONA 5303 Å

E | NO DATA | W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

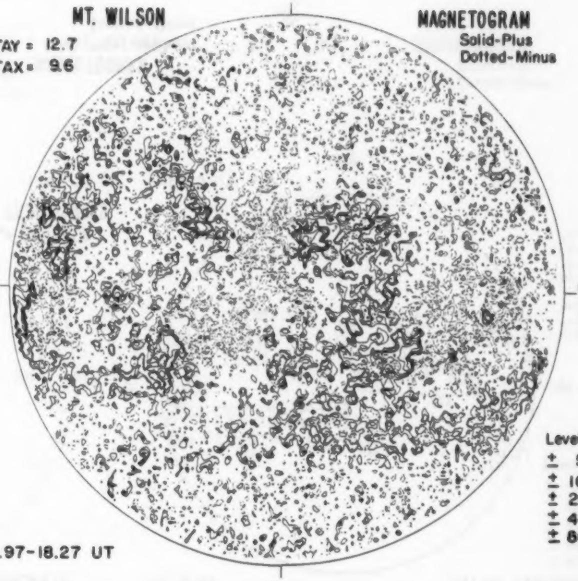
KITT PEAK | Np | MAGNETOGRAM Bright-Plus Dark - Minus

1901 UT

Sp

MT. WILSON | Np | MAGNETOGRAM Solid-Plus Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6



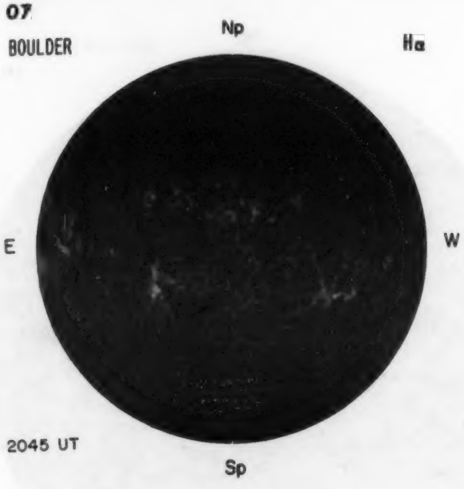
Levels
± 5
± 10
± 20
± 40
± 80

16.97-18.27 UT

Sp

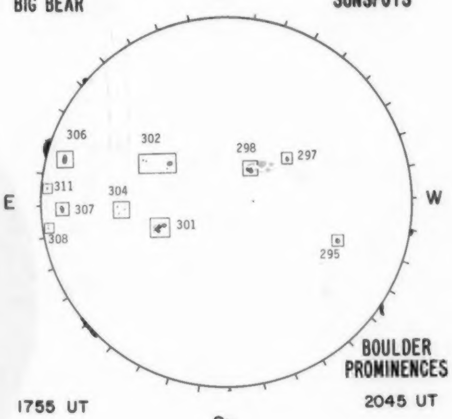
07

BOULDER Hα



2045 UT

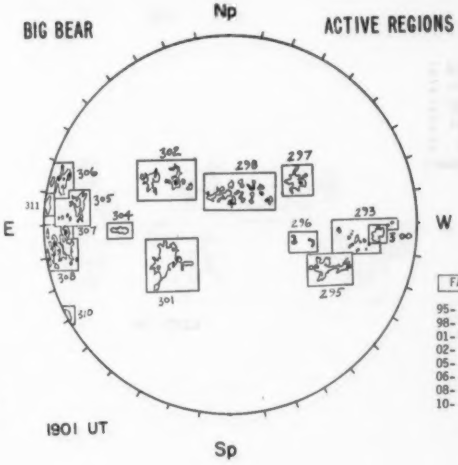
BIG BEAR SUNSPOTS



1755 UT

BOULDER PROMINENCES 2045 UT

BIG BEAR ACTIVE REGIONS

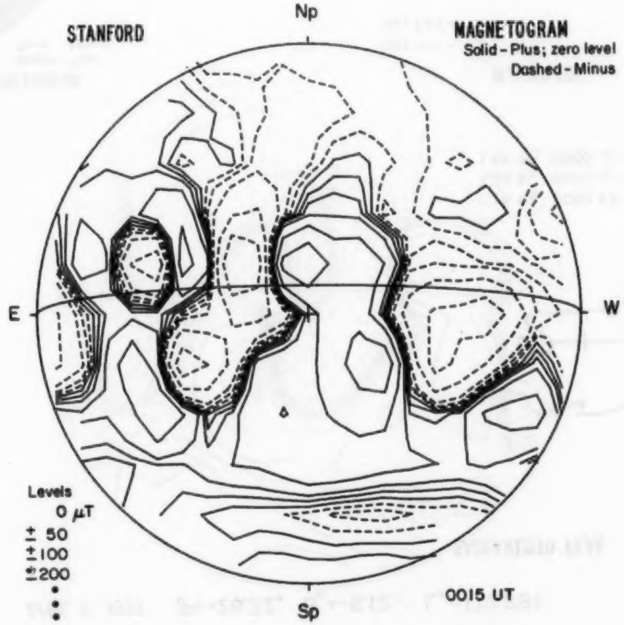


1901 UT

FAIR	WM
95-	1400-3.0
98-	2000-2.5
01-	2500-3.0
02-	1500-2.5
05-	1500-2.5
06-	2800-3.5
08-	2700-3.0
10-	0500-4.0

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

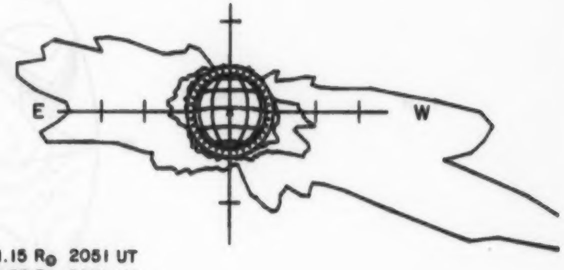


Levels
0 μT
± 50
±100
±200
•
•
•

0015 UT

APRIL 8, 1982 (P=-26.32, B_o=-6.12, L_o=178.98)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 2051 UT
1.35 $R_\odot$ 2030 UT
1.55 $R_\odot$ 2040 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E W

1533 UT Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

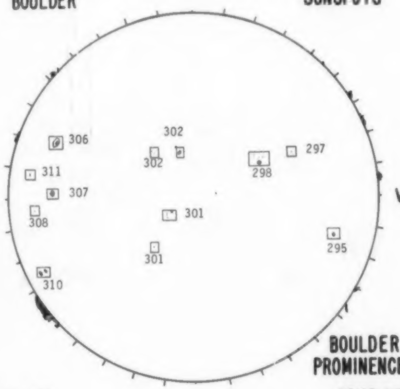
Sp

08

SACRAMENTO PEAK Hα

1437 UT

BOULDER SUNSPOTS

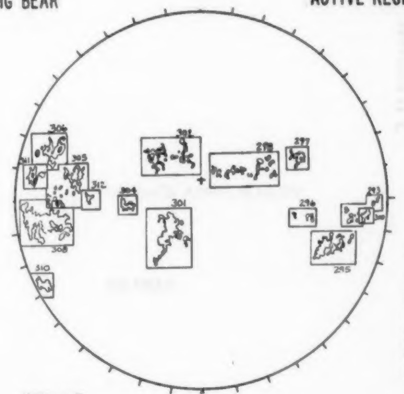


1525 UT

BOULDER PROMINENCES

1540 UT

BIG BEAR ACTIVE REGIONS

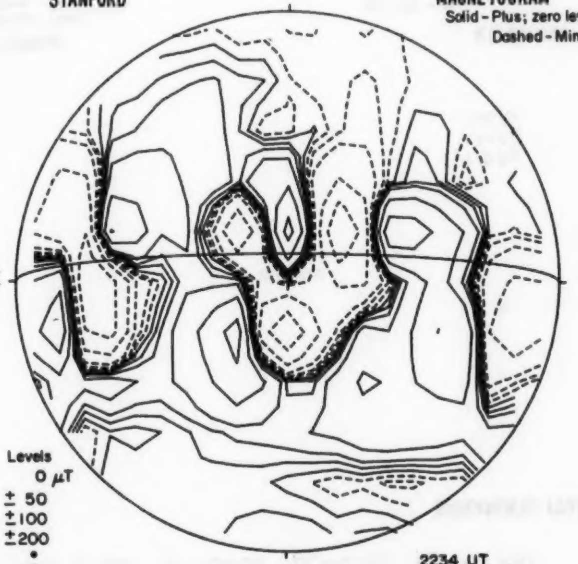


1533 UT

GOOD	WM/MW
95-	1500-3.0
98-	1500-2.5
01-	2400-3.0
02-	1500-2.5
05-	1200-2.5
06-	2300-3.0
08-	4000-3.0
10-	1600-3.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



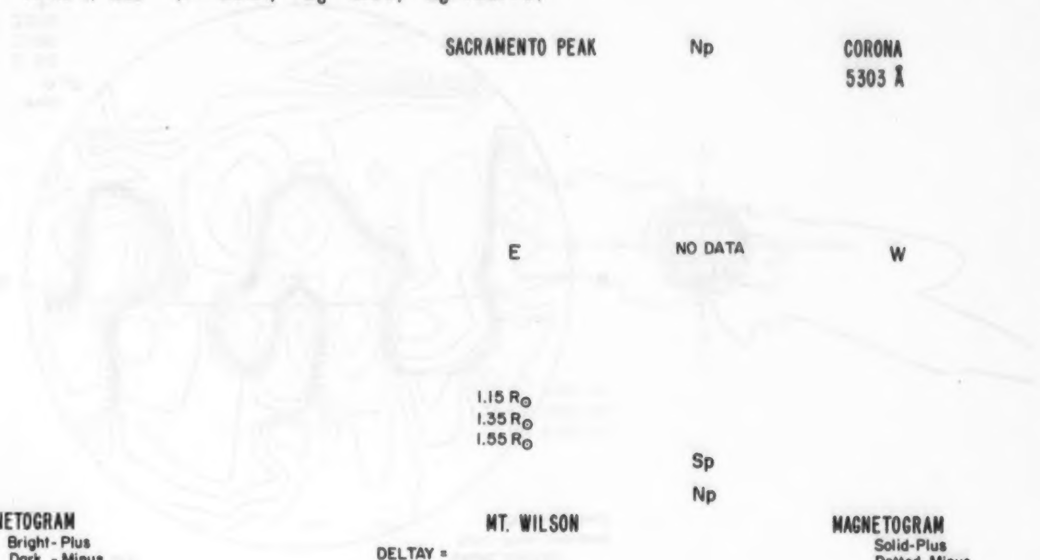
Levels
0 μT
± 50
±100
±200

2234 UT

APRIL 9, 1982 (P=-26.31, B_o=-6.05, L_o=165.78)

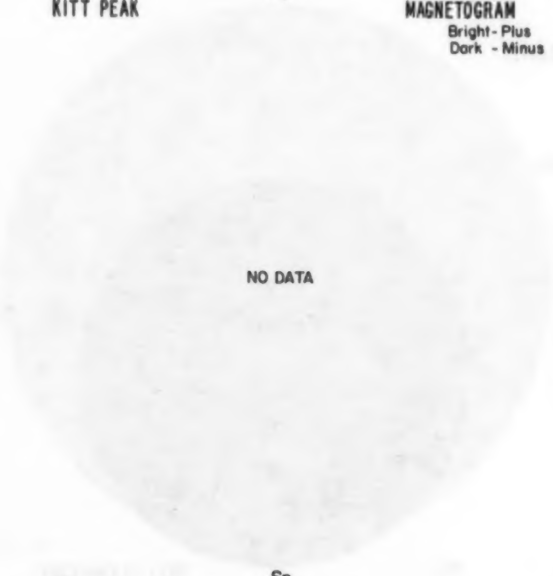
SACRAMENTO PEAK

CORONA
5303 Å



KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus



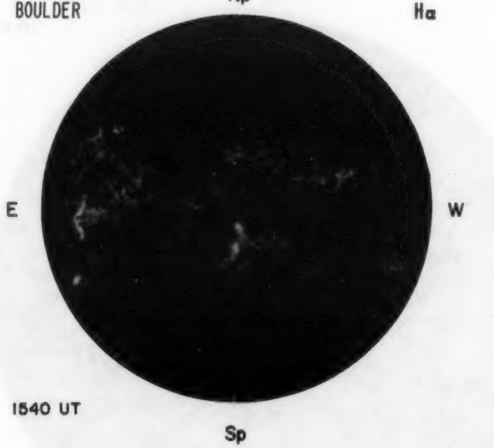
MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

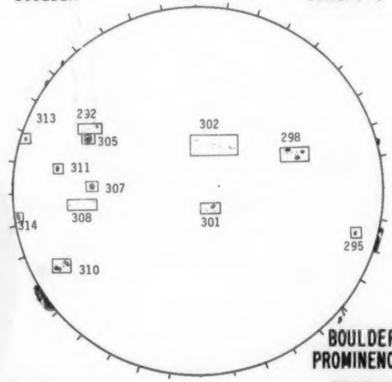
DELTAY =
DELTAX =

09

BOULDER Hα



BOULDER SUNSPOTS



BOULDER PROMINENCES
1540 UT

BIG BEAR ACTIVE REGIONS

Np
E
NO DATA APRIL 9,13,29
W
Sp

STANFORD MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Np
E
NO DATA
W
Sp

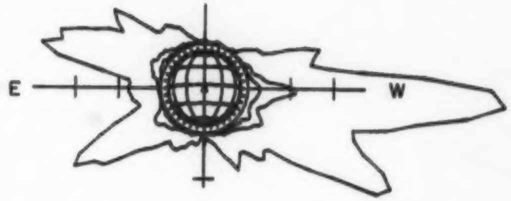
Levels
0 μT
± 50
±100
±200

APRIL 10, 1982 (P=-26.29, B_o=-5.98, L_o=152.58)

SACRAMENTO PEAK

Np

CORONA
5303 Å



1.15 $R_\odot$ 1437 UT
1.35 $R_\odot$ 1417 UT
1.55 $R_\odot$ 1426 UT

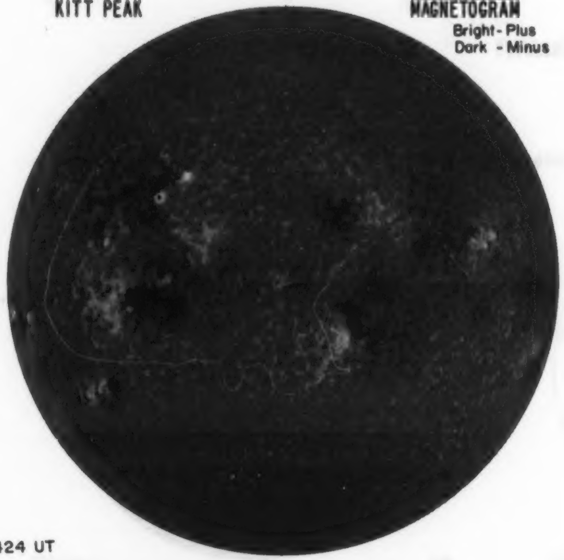
Sp

KITT PEAK

Np

MAGNETOGRAM
Bright-Plus
Dark -Minus

E



W

1424 UT

Sp

Np

MT. WILSON

DELTAY =
DELTAX =

MAGNETOGRAM
Solid-Plus
Dotted-Minus

E

NO DATA

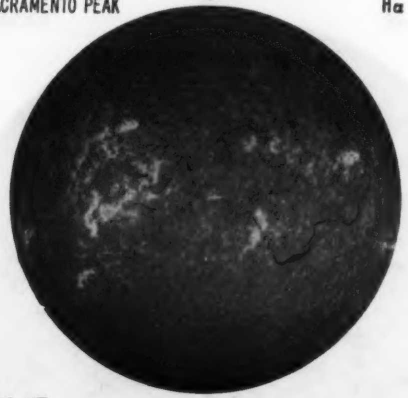
W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

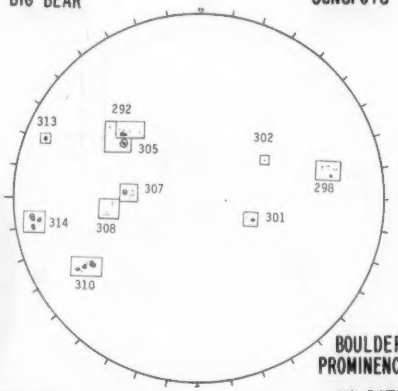
10

SACRAMENTO PEAK Np Hα

E  W

1438 UT Sp

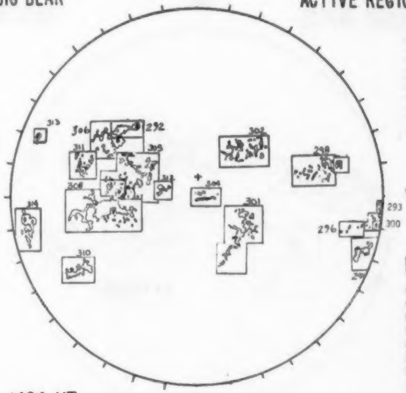
BIG BEAR Np SUNSPOTS

E  W

1705 UT Sp

BOULDER
PROMINENCES
NO DATA

BIG BEAR Np ACTIVE REGIONS

E  W

1424 UT Sp

GOON	MW
92-	0900-3.5
95-	1500-3.0
01-	2300-2.5
02-	1500-2.5
05-	1200-2.5
06-	1800-2.5
08-	4000-3.0
10-	1500-3.5

STANFORD Np **MAGNETOGRAM**
Solid - Plus; zero level
Dashed - Minus

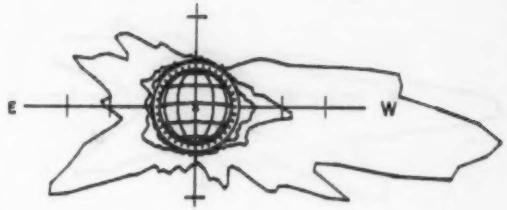
E NO DATA W

Levels
0 μT
± 50
±100
±200
•
•
•

Sp

APRIL 11, 1982 (P=-26.27, B_o=-5.91, L_o=139.38)

SACRAMENTO PEAK Np CORONA 5303 Å

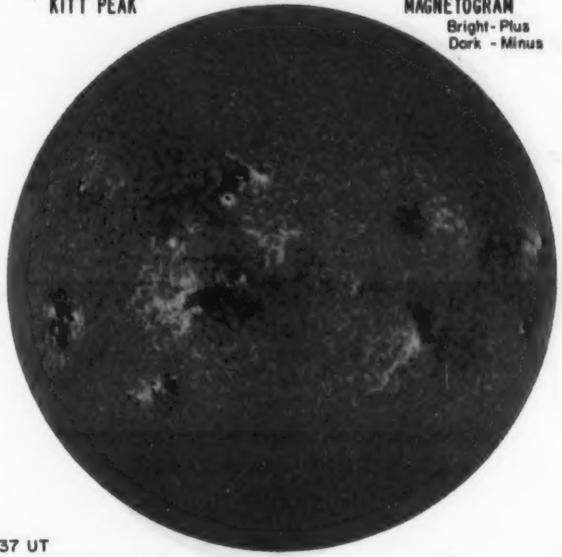


1.15 $R_\odot$ 1528 UT
1.35 $R_\odot$ 1444 UT
1.55 $R_\odot$ 1505 UT

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E



W

1437 UT

Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY =
DELTAX =

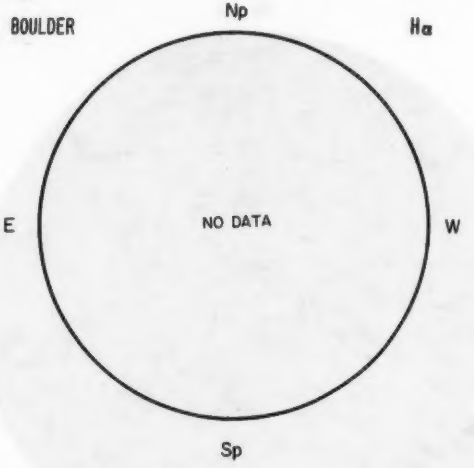
E NO DATA W

Levels
± 5
± 10
± 20
± 40
± 80

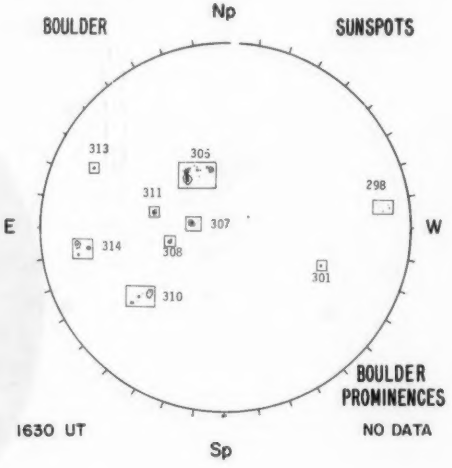
Sp

11

BOULDER Hα



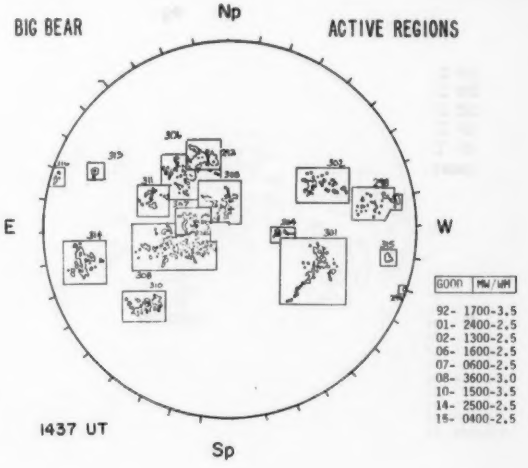
BOULDER SUNSPOTS



1630 UT

BOULDER
PROMINENCES
NO DATA

BIG BEAR ACTIVE REGIONS



1437 UT

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

Np

E NO DATA W

Sp

Levels
0 μT
± 50
±100
±200

APRIL 12, 1982 (P=-26.24, B_o=-5.84, L_o=126.18)

SACRAMENTO PEAK

CORONA
5303 Å

Np

E

NO DATA

W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

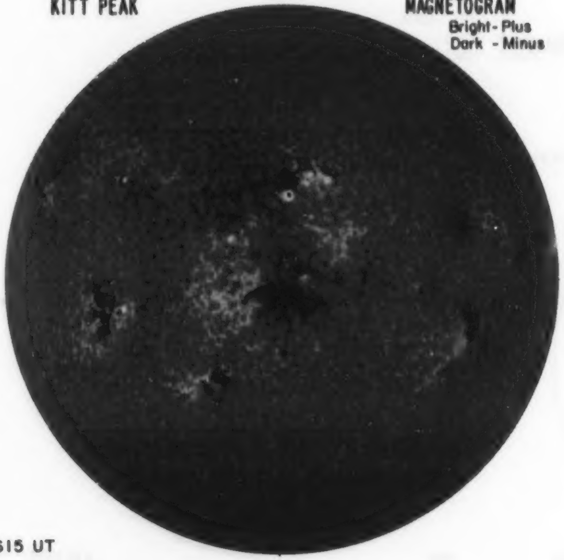
Sp

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

Np

E



W

1615 UT

Sp

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = .
DELTAX =

Np

E

NO DATA

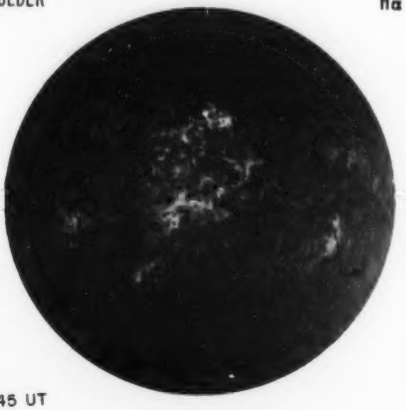
W

Levels
± 5
± 10
± 20
± 40
± 80

Sp

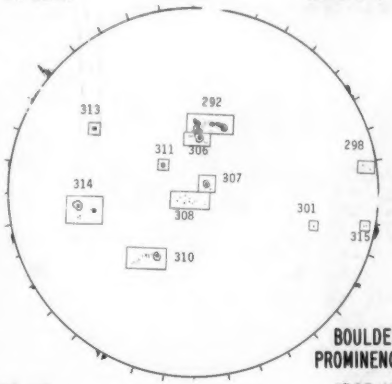
12

BOULDER Hα



1545 UT

BIG BEAR SUNSPOTS

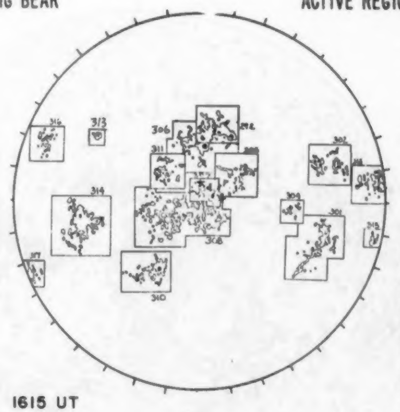


1605 UT

BOULDER PROMINENCES

1545 UT

BIG BEAR ACTIVE REGIONS



1615 UT

FAIR	MW/WM
92-	2000-3.5
98-	1300-2.5
01-	1800-2.5
02-	1300-2.5
07-	0600-2.5
08-	4400-3.0
10-	1400-2.5
14-	2700-2.5
15-	0500-2.5
17-	0900-2.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np

E NO DATA W

Sp

Levels
0 μT
± 50
±100
±200
•
•
•

APRIL 13, 1982 (P=-26.20, B_o=-5.77, L_o=112.98)

SACRAMENTO PEAK Np CORONA 5303 Å

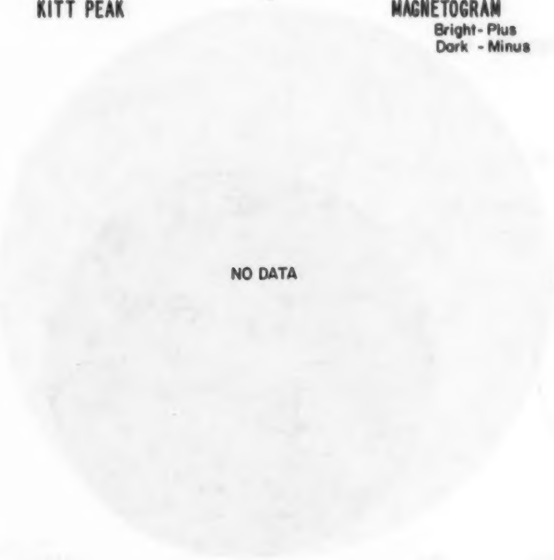
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E NO DATA W

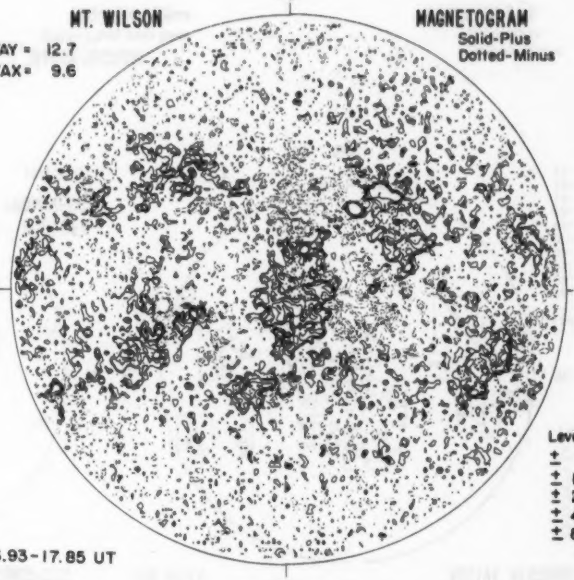


Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6

E W



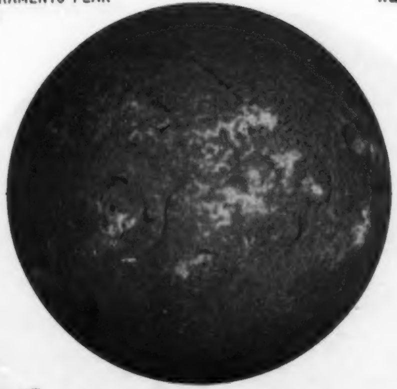
Levels
± 5
± 10
± 20
± 40
± 80

16.93-17.85 UT

Sp

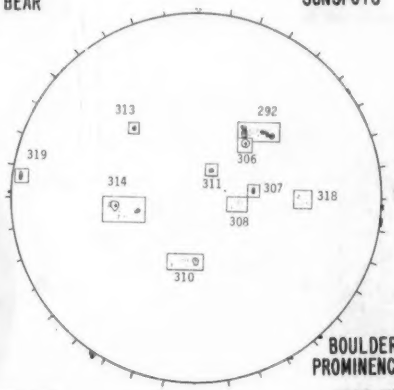
13

SACRAMENTO PEAK Np Hα

E  W

1911 UT Sp

BIG BEAR Np SUNSPOTS

E  W

1755 UT Sp

BOULDER PROMINENCES 1540 UT

BIG BEAR Np ACTIVE REGIONS

E NO DATA W

Sp

STANFORD Np MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

E NO DATA W

Levels
0 μT
± 50
±100
±200

Sp

APRIL 14, 1982 (P=-26.15, B_o=-5.69, L_o=99.77)

SACRAMENTO PEAK Np CORONA 5303 Å

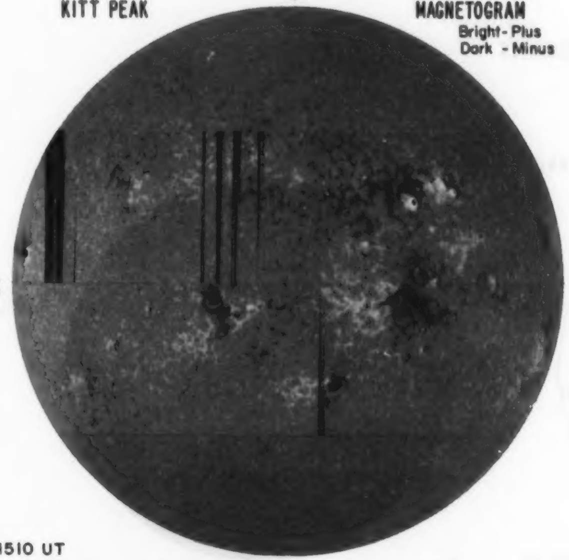
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E



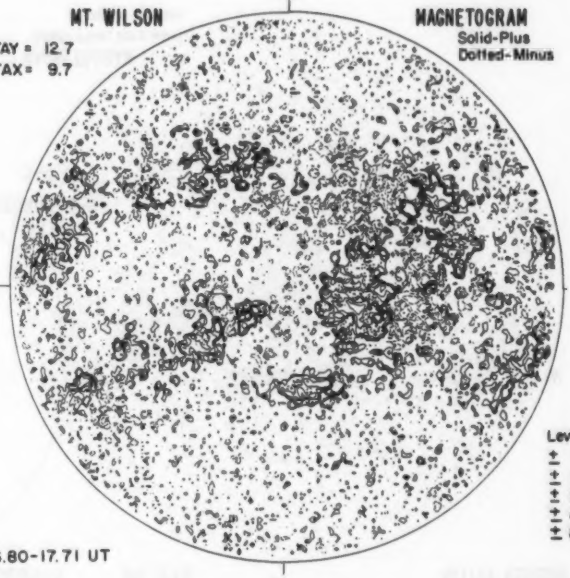
W

1510 UT Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.7

E



W

Levels
± 5
± 10
± 20
± 40
± 80

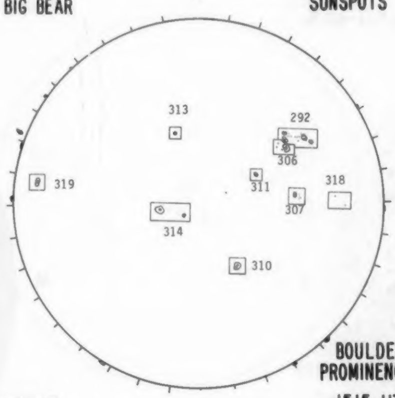
16.80-17.71 UT Sp

14

SACRAMENTO PEAK — Hα

1440 UT

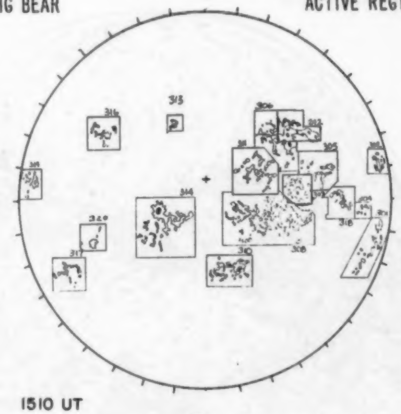
BIG BEAR — SUNSPOTS



1735 UT

BOULDER PROMINENCES 1515 UT

BIG BEAR — ACTIVE REGIONS



1510 UT

POOR	MW
92-	2000-3.5
01-	1600-2.5
06-	1500-3.0
08-	4500-3.0
10-	1400-2.5
14-	2400-2.5
17-	0900-2.5
19-	1200-2.5
20-	0400-3.5

STANFORD — MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np

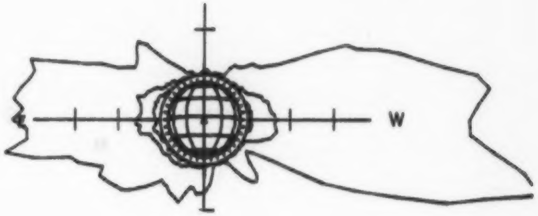
E — NO DATA — W

Sp

Levels
0 μT
± 50
±100
±200
•
•
•

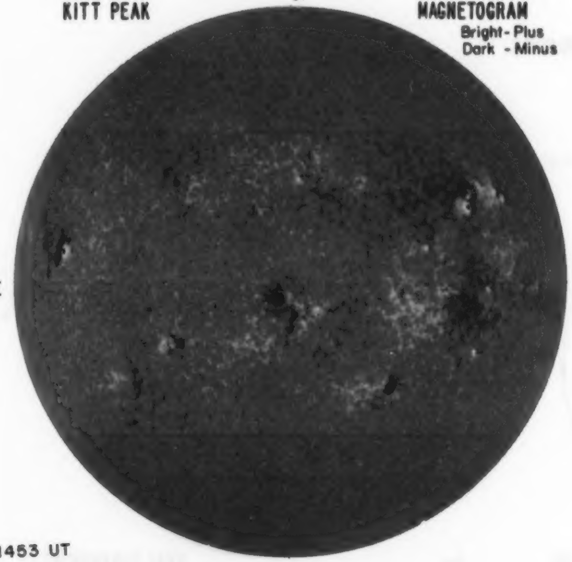
APRIL 15, 1982 (P=-26.10, B_o=-5.61, L_o= 86.57)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1427 UT
1.35 $R_\odot$ 1407 UT
1.55 $R_\odot$ 1416 UT

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

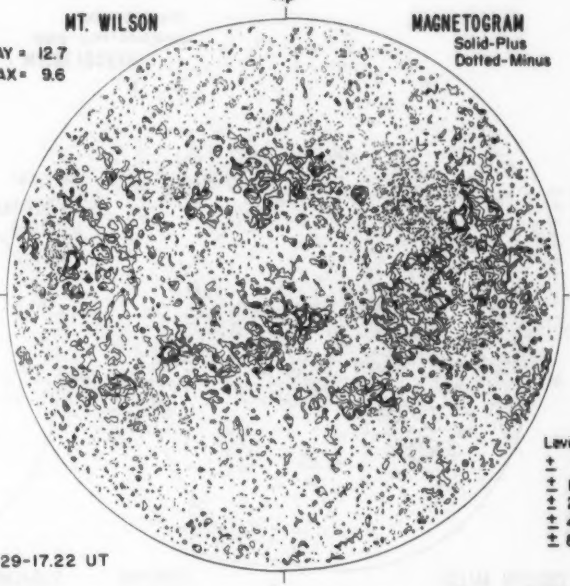


1453 UT Sp

Sp
Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

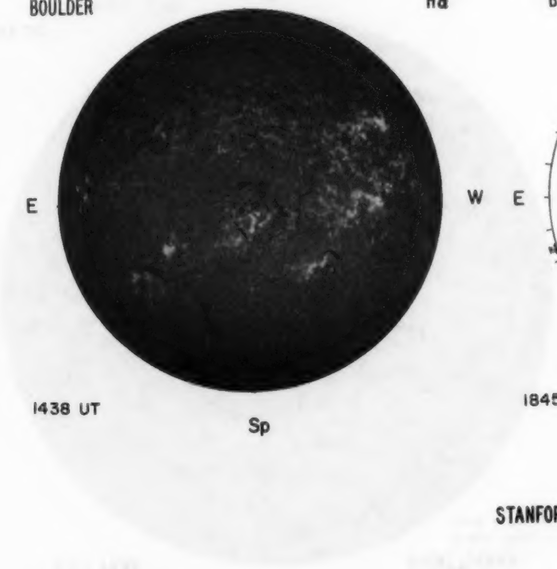
DELTAY = 12.7
DELTAX= 9.6

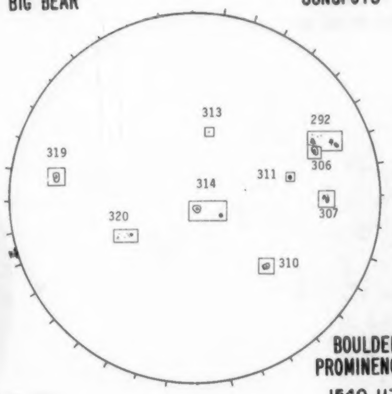


Levels
± 5
± 10
± 20
± 40
± 80

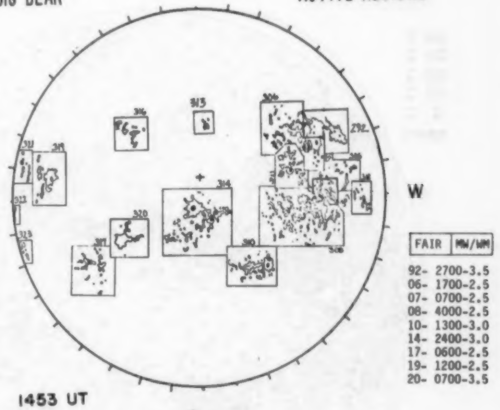
16.29-17.22 UT Sp

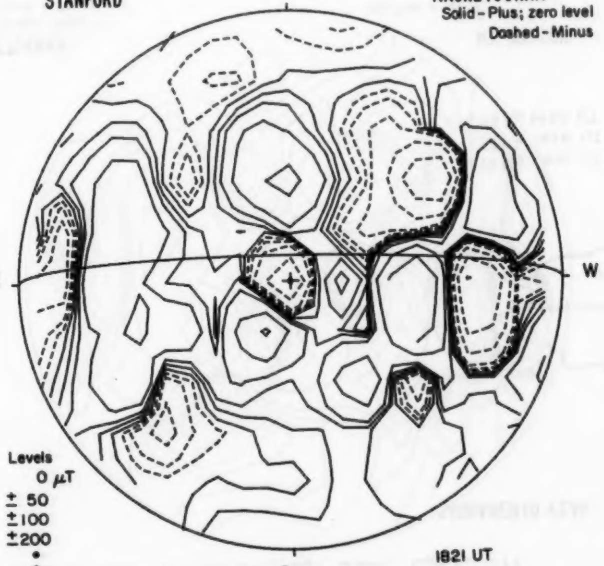
15





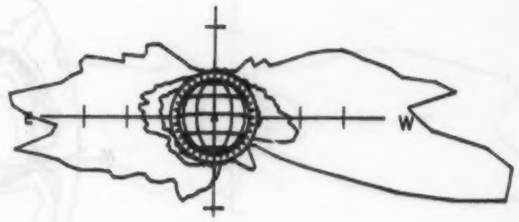
BOULDER
PROMINENCES
1540 UT



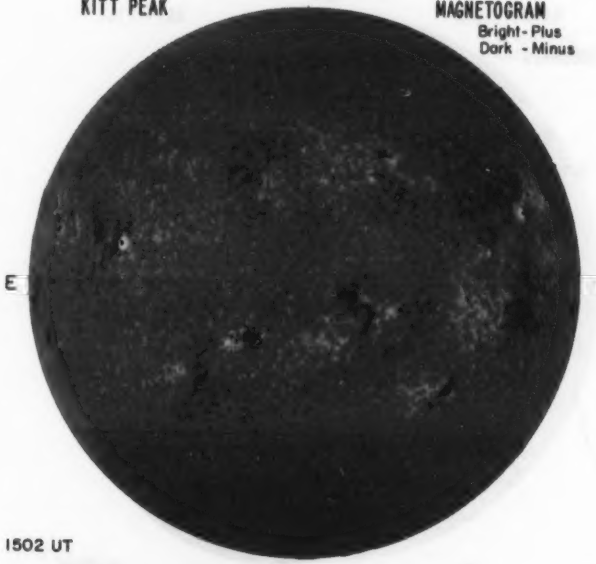


APRIL 16, 1982 (P=-26.04, B_o=-5.53, L_o= 73.37)

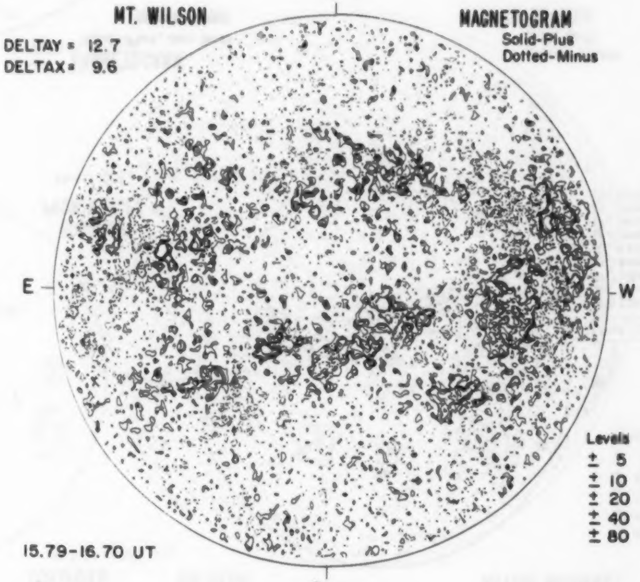
SACRAMENTO PEAK



KITT PEAK



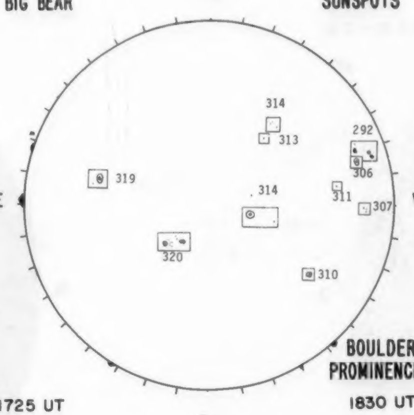
MT. WILSON



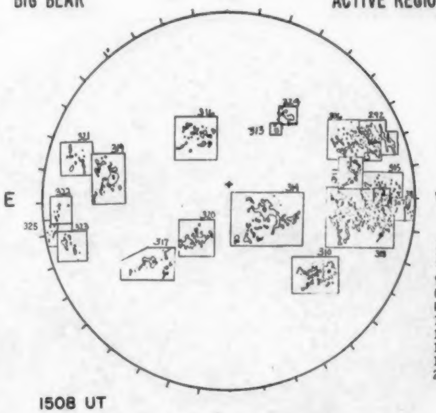
16

SACRAMENTO PEAK Hα

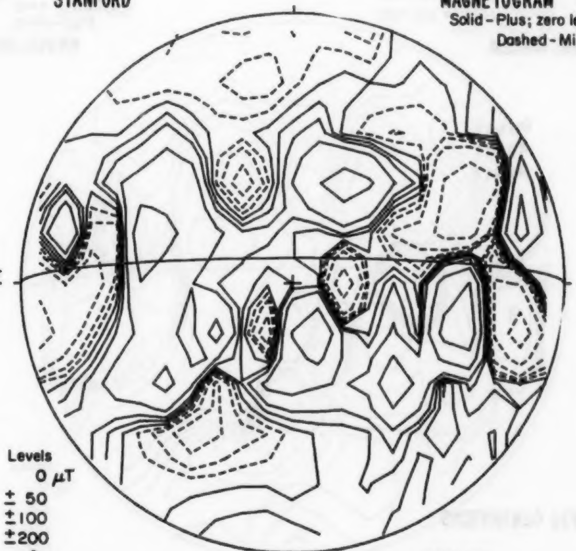
BIG BEAR SUNSPOTS



BIG BEAR ACTIVE REGIONS



STANFORD MAGNETOGRAM



APRIL 17, 1982 (P=-25.97, B_o=-5.45, L_o=60.16)

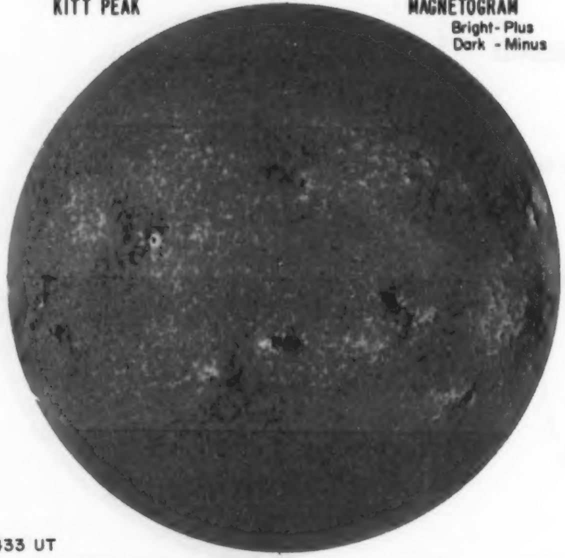
SACRAMENTO PEAK — Np — CORONA 5303 Å

E — NO DATA — W

$1.15 R_\odot$
$1.35 R_\odot$
$1.55 R_\odot$

Sp

KITT PEAK — Np — MAGNETOGRAM
Bright-Plus
Dark - Minus

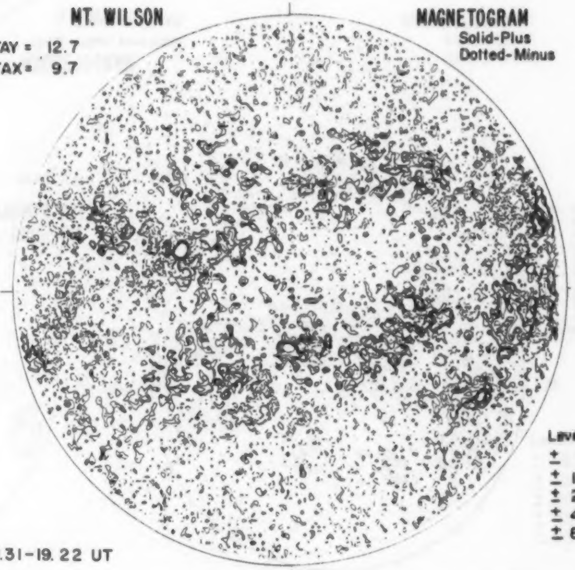
E  W

1433 UT — Sp

Np

MT. WILSON — MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.7

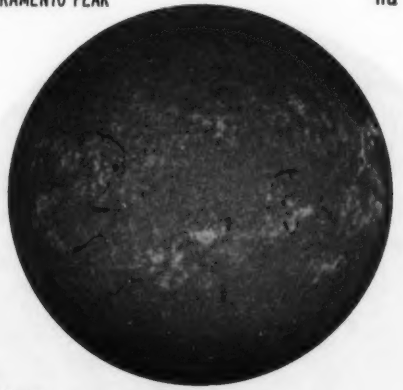
E  W

Levels
± 5
± 10
± 20
± 40
± 80

18.31-19.22 UT — Sp

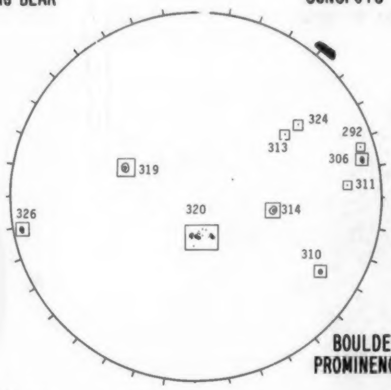
17

SACRAMENTO PEAK Np Hα

E  W

1830 UT Sp

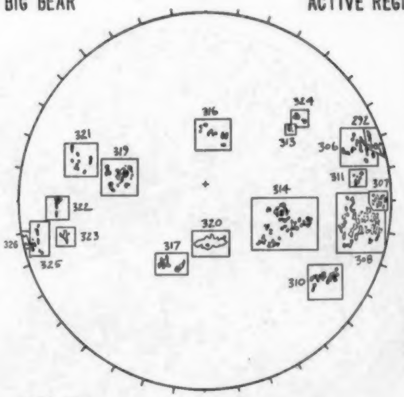
BIG BEAR Np SUNSPOTS

E  W

BOULDER PROMINENCES

1745 UT Sp

BIG BEAR Np ACTIVE REGIONS

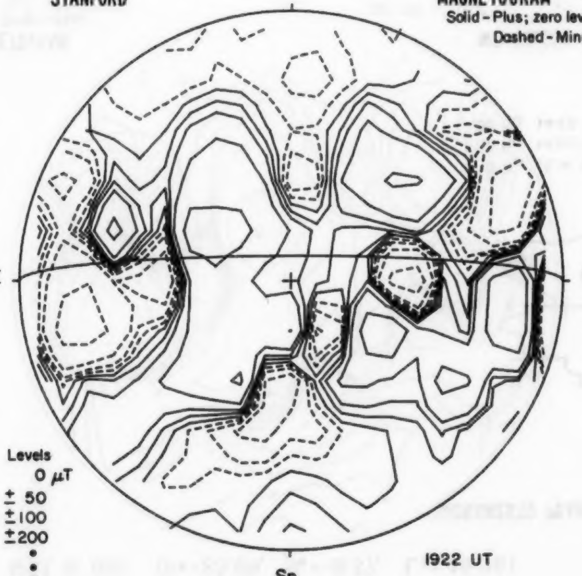
E  W

GOOD	WM

92- 2300-2.5
06- 1400-2.5
08- 3500-2.5
10- 1000-2.5
14- 2300-2.5
19- 1000-2.5
20- 1000-3.5
26- 0800-3.0

1433 UT Sp

STANFORD Np MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus

E  W

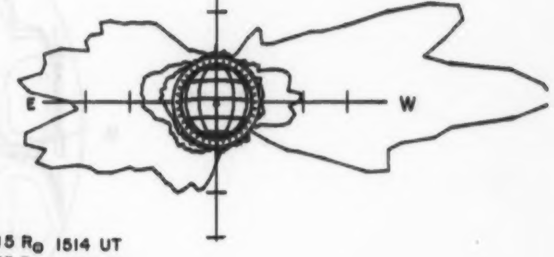
Levels
0 μT
± 50
±100
±200
•
•
•

1922 UT Sp

APRIL 18, 1982 (P=-25.89, B_o=-5.37, L_o=46.96)

SACRAMENTO PEAK

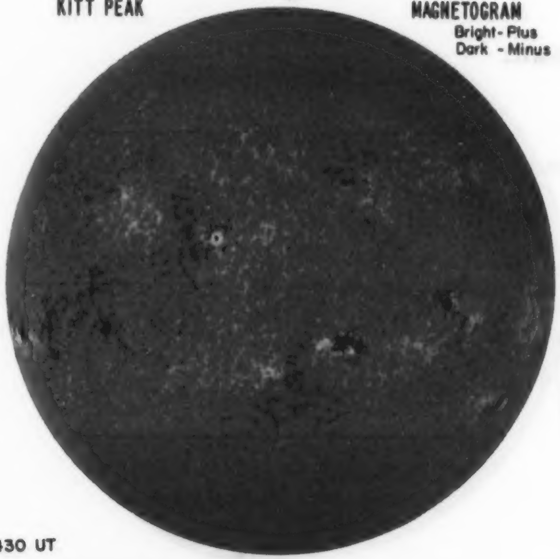
CORONA
5303 Å



1.15 $R_\odot$ 1514 UT
1.35 $R_\odot$ 1436 UT
1.55 $R_\odot$ 1446 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

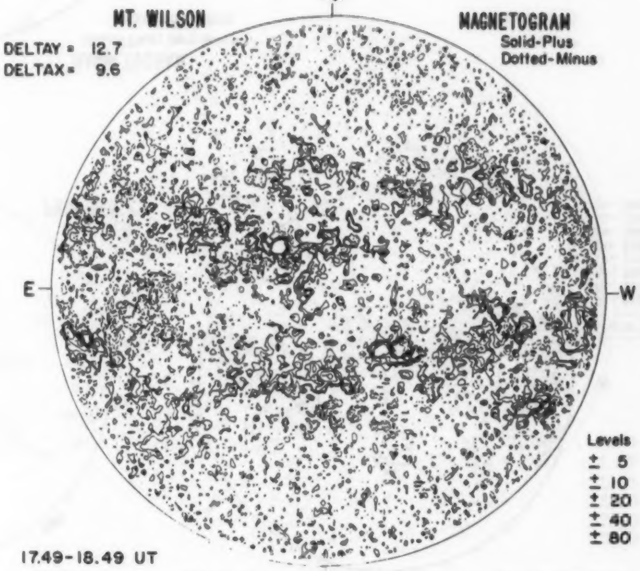


1430 UT

MT. WILSON

DELTAY = 12.7
DELTAX = 9.6

MAGNETOGRAM
Solid-Plus
Dotted-Minus

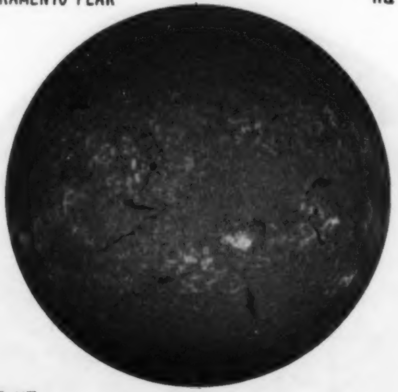


Levels
± 5
± 10
± 20
± 40
± 80

17.49-18.49 UT

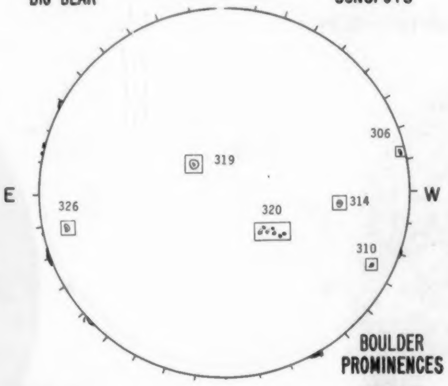
18

SACRAMENTO PEAK Hα



1830 UT

BIG BEAR SUNSPOTS

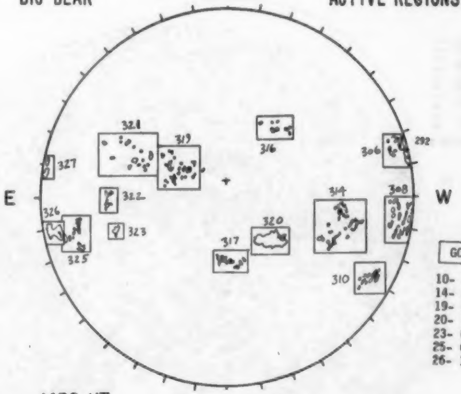


1845 UT

BOULDER PROMINENCES

1830 UT

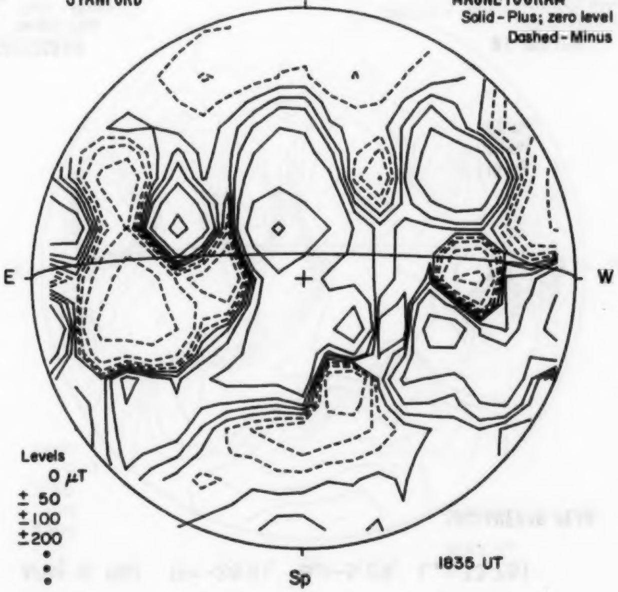
BIG BEAR ACTIVE REGIONS



1430 UT

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



1835 UT

APRIL 19, 1982 (P=-25.81, B_o=-5.29, L_o=33.75)

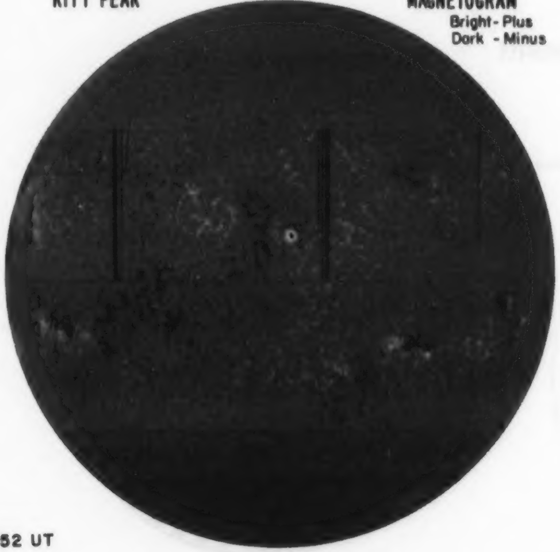
SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

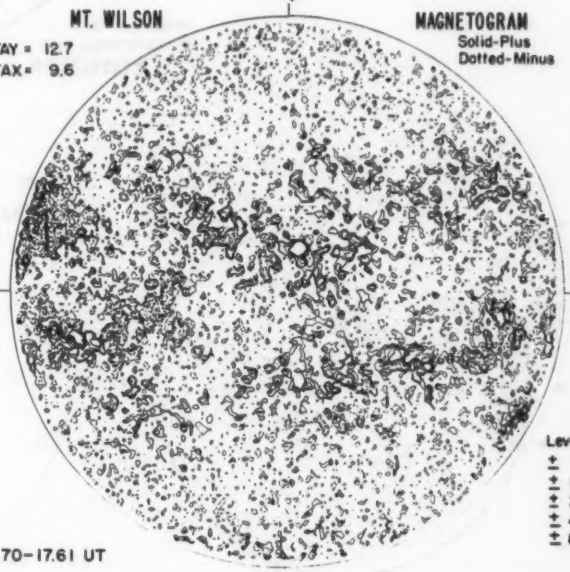
KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

E  W

1552 UT Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

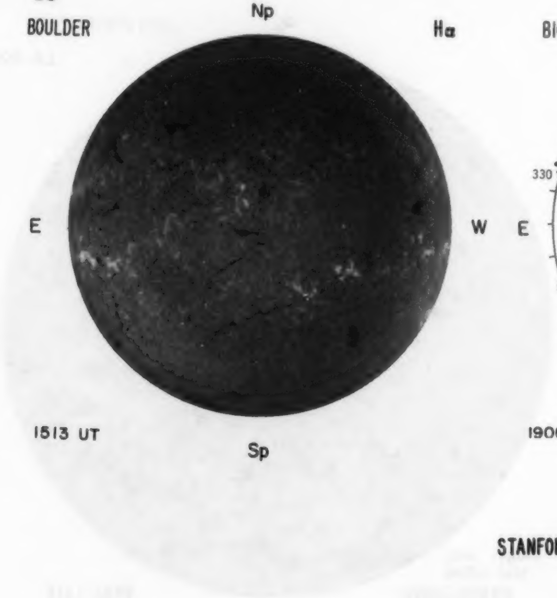
DELTAY = 12.7
DELTAX = 9.6

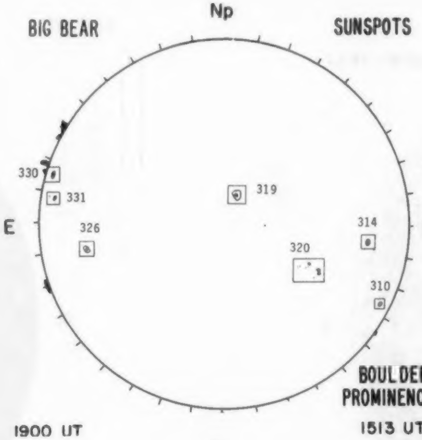
E  W

Levels
± 5
± 10
± 20
± 40
± 80

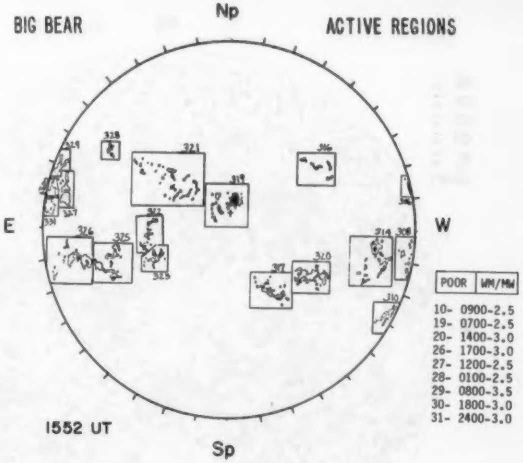
16.70-17.61 UT Sp

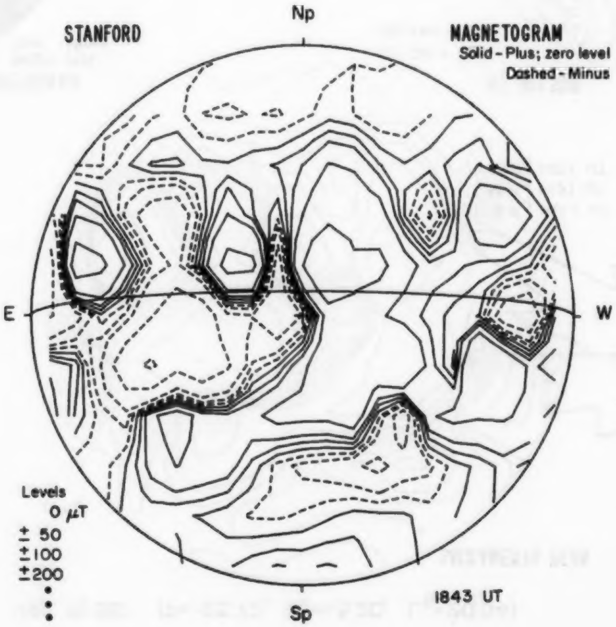
19





BOULDER PROMINENCES 1513 UT

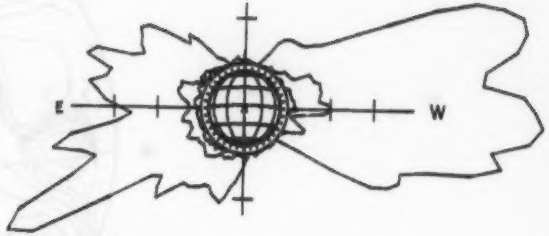




APRIL 20, 1982 (P=-25.72, B_0=-5.20, L_0=20.54)

SACRAMENTO PEAK

CORONA
5303 Å



1.15 $R_\odot$ 1442 UT
1.35 $R_\odot$ 1421 UT
1.55 $R_\odot$ 1431 UT

KITT PEAK

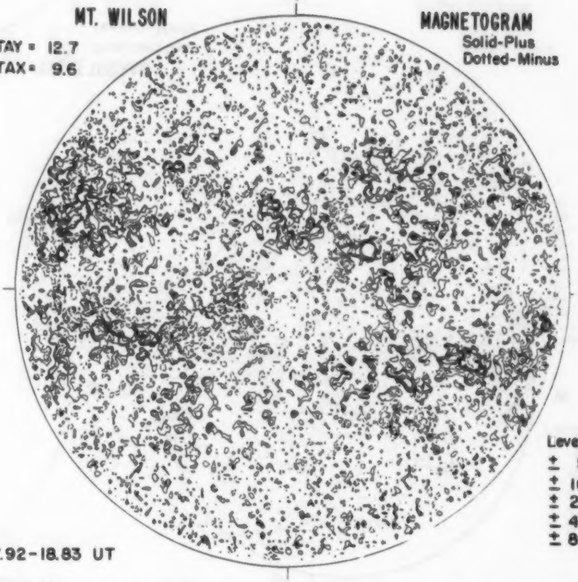
MAGNETOGRAM
Bright-Plus
Dark - Minus

1408 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

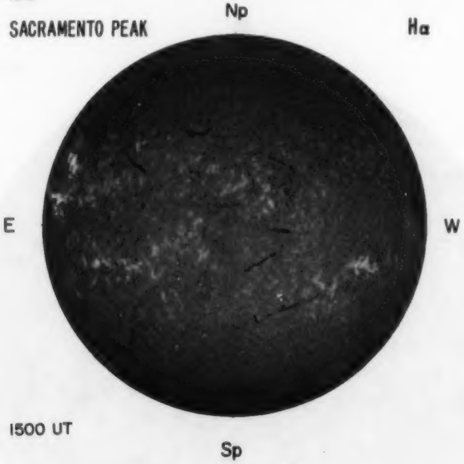
DELTAY = 12.7
DELTAX = 9.6



17.92-18.83 UT

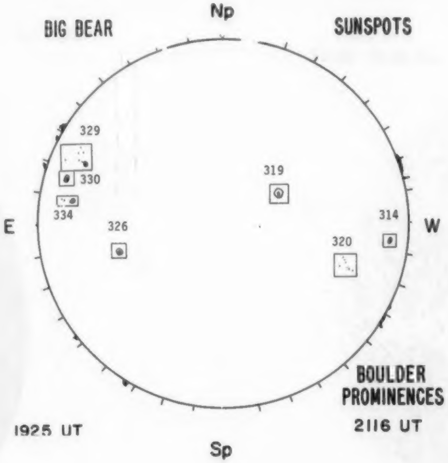
20

SACRAMENTO PEAK Hα



1500 UT

BIG BEAR SUNSPOTS

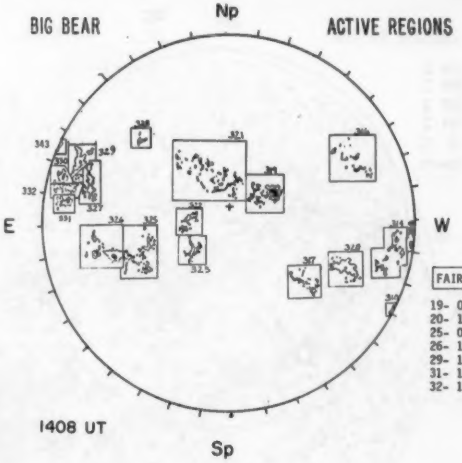


1925 UT

BOULDER PROMINENCES

2116 UT

BIG BEAR ACTIVE REGIONS

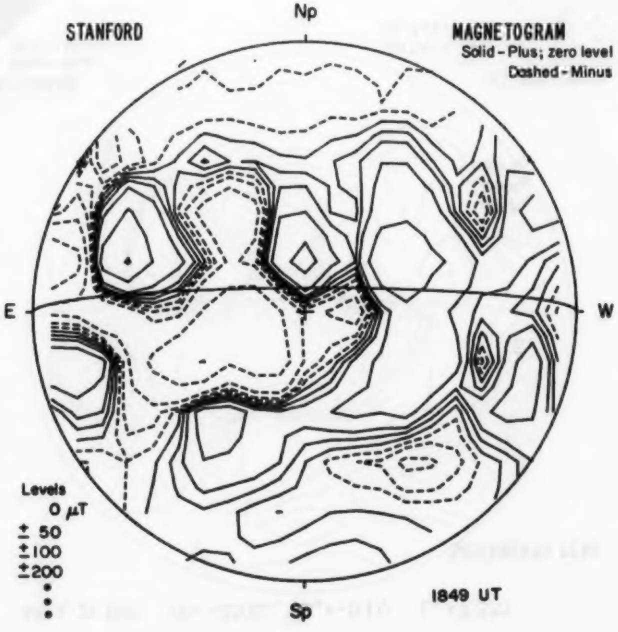


1408 UT

FAIR	WM/MW
19-	0700-2.5
20-	1600-3.5
25-	0900-2.5
26-	1700-3.0
29-	1400-4.0
31-	1400-3.0
32-	1200-3.5

STANFORD MAGNETOGRAM

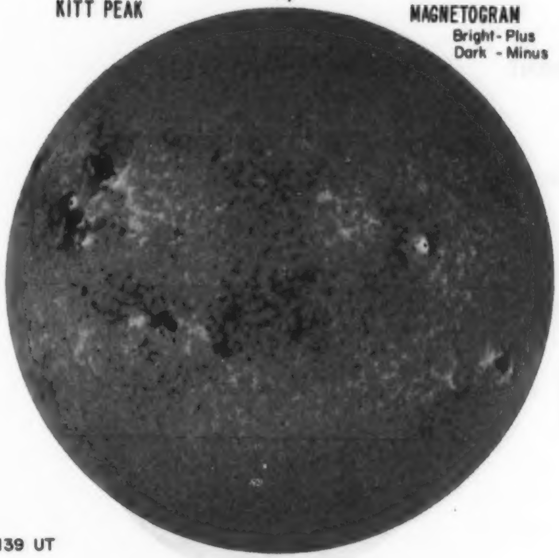
Solid - Plus; zero level
Dashed - Minus

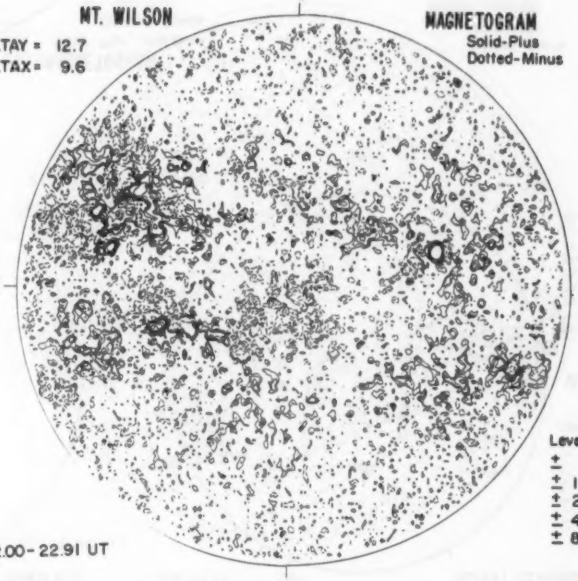


Levels
0 μT
± 50
±100
±200

1849 UT

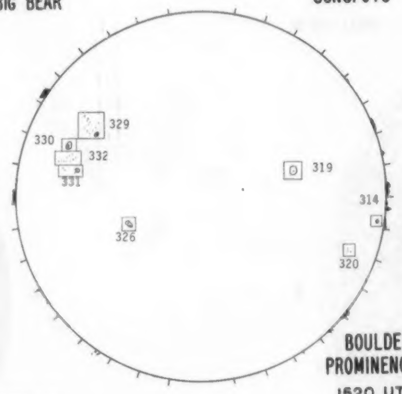
APRIL 21, 1982 (P=-25.62, B_o=-5.11, L_o=7.33)

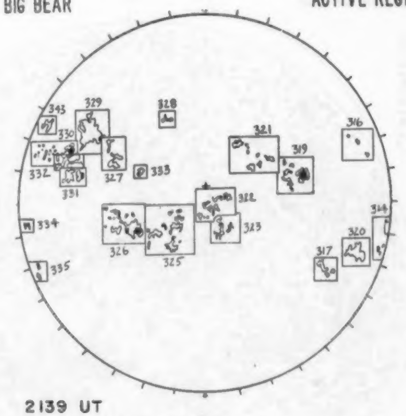


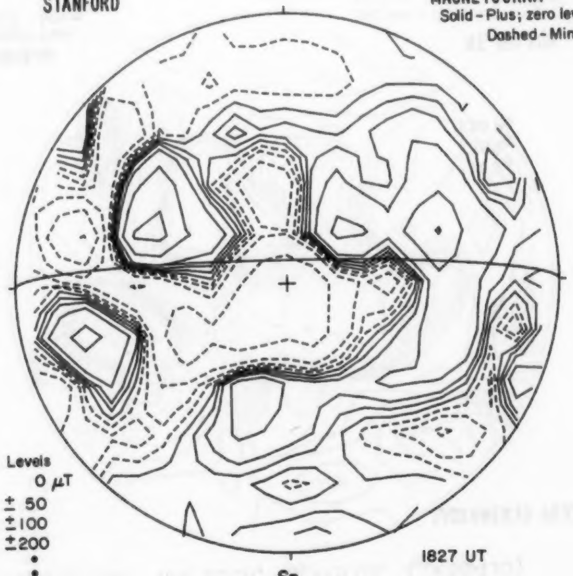


21

SACRAMENTO PEAK
Hα
Np
E
W
Sp
1600 UT


BIG BEAR
SUNSPOTS
Np
E
W
Sp
329
330
332
331
326
319
314
320
1755 UT
BOULDER
PROMINENCES
1520 UT


BIG BEAR
ACTIVE REGIONS
Np
E
W
Sp
343
329
328
330
332
331
327
333
334
335
326
325
322
323
321
319
316
314
320
317
2139 UT
POOR
WM
20- 1700-3.5
26- 1700-3.0
27- 0800-2.5
29- 2800-3.5
31- 1100-3.0
32- 1400-3.5
43- 0500-2.5


STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
Levels
0 μT
± 50
±100
±200
1827 UT

APRIL 22, 1982 $(P=-25.51, B_o=-5.03, L_o=354.13)$

SACRAMENTO PEAK

CORONA
5303 Å

Np

E

NO DATA

W

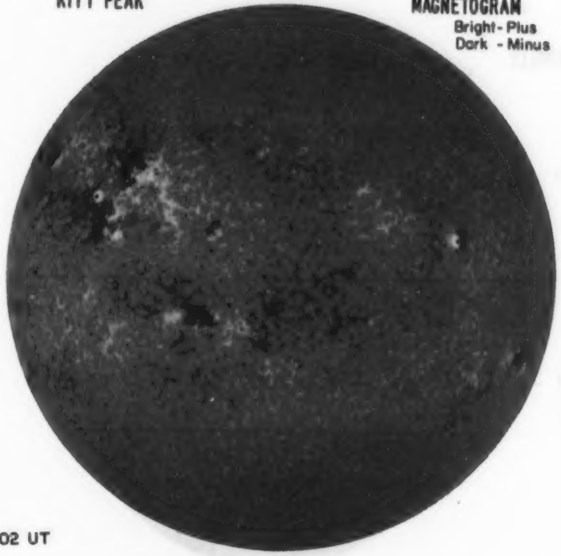
$1.15 R_\odot$
$1.35 R_\odot$
$1.55 R_\odot$

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

Np

E



W

Sp

1402 UT

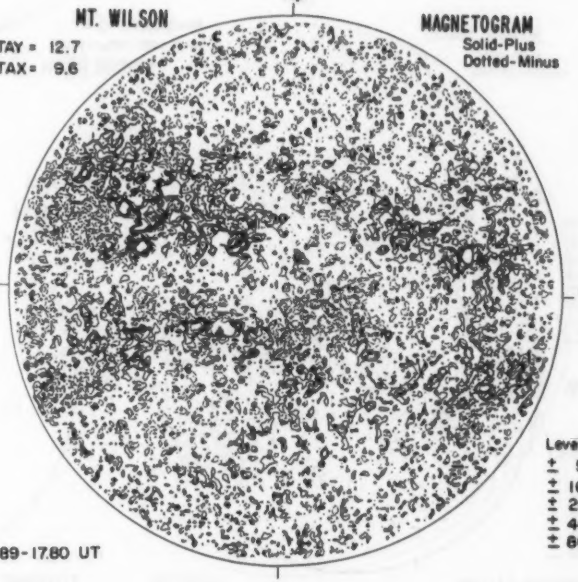
MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6

Sp
Np

E



W

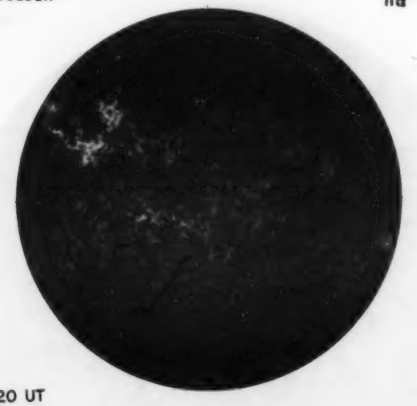
Sp

16.89-17.80 UT

Levels
± 5
± 10
± 20
± 40
± 80

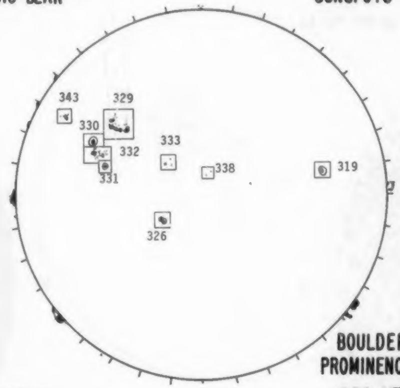
22

BOULDER Hα



1520 UT

BIG BEAR SUNSPOTS

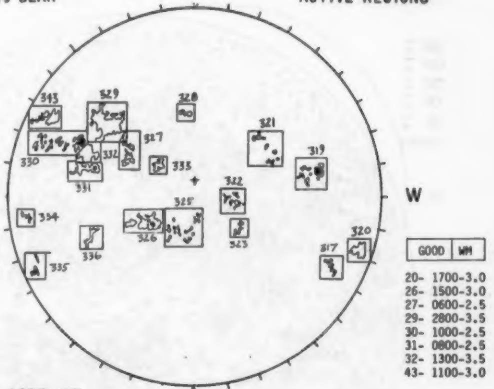


1645 UT

BOULDER PROMINENCES

1520 UT

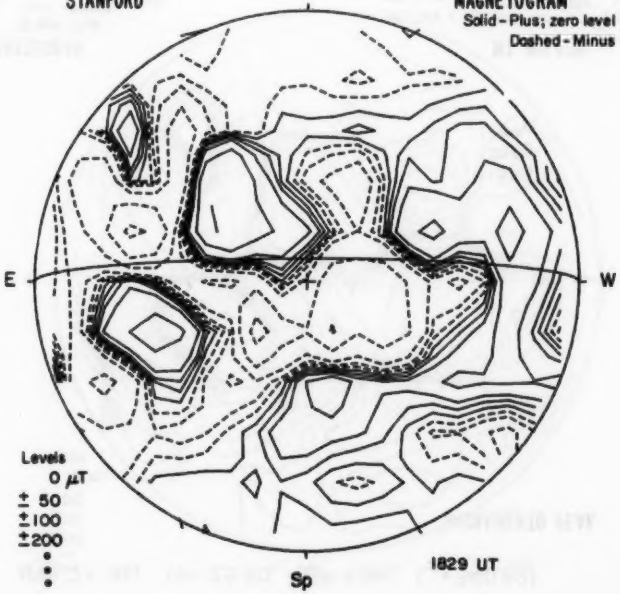
BIG BEAR ACTIVE REGIONS



1402 UT

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Levels
0 μT
± 50
±100
±200
•
•
•

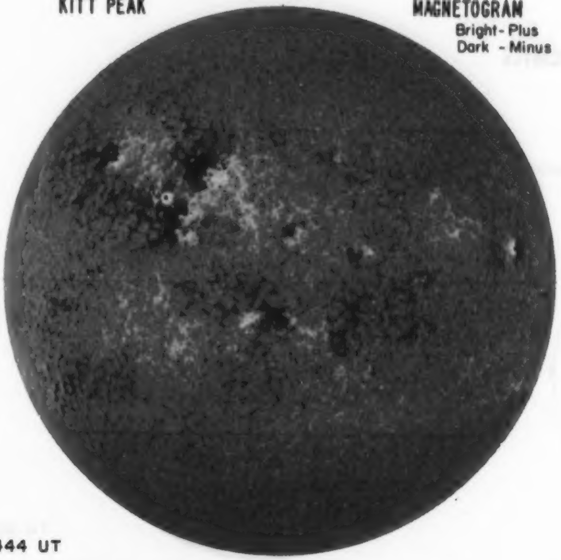
1829 UT

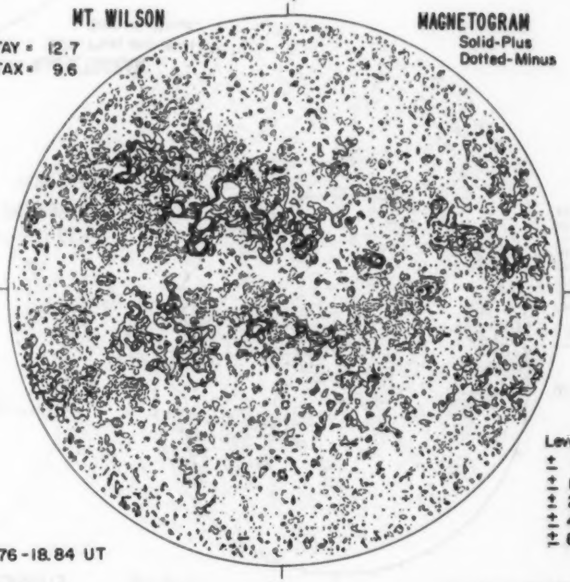
APRIL 23, 1982 (P=-25.40, B_o=-4.94, L_o=340.92)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$





23

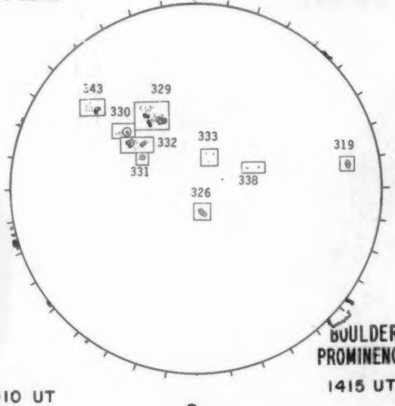
BOULDER Hα

E W

Np Sp

1415 UT

BIG BEAR SUNSPOTS



E W

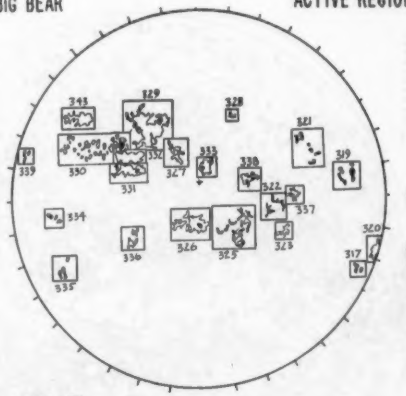
Np Sp

1910 UT

BOULDER PROMINENCES

1415 UT

BIG BEAR ACTIVE REGIONS



E W

Np Sp

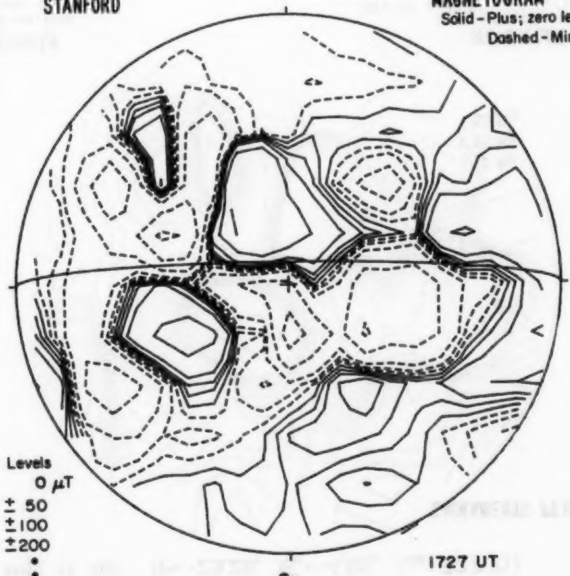
1444 UT

V GOOD	WM

20- 1000-2.5
26- 1500-3.0
29- 3100-3.5
31- 0700-3.0
32- 1400-3.5
37- 0300-2.5
38- 0400-2.5
43- 1500-3.5

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus



Np Sp E W

Levels
0 μT
± 50
±100
±200
•
•
•

1727 UT

APRIL 24, 1982 (P=-25.28, B_o=-4.85, L_o=327.71)

SACRAMENTO PEAK

CORONA 5303 Å

Np

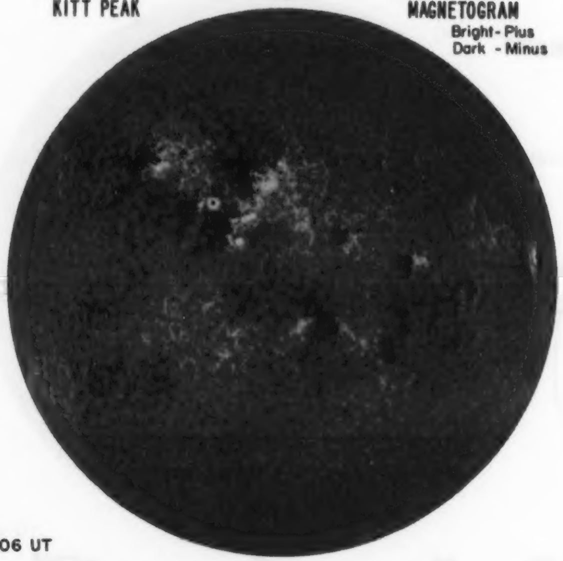
E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

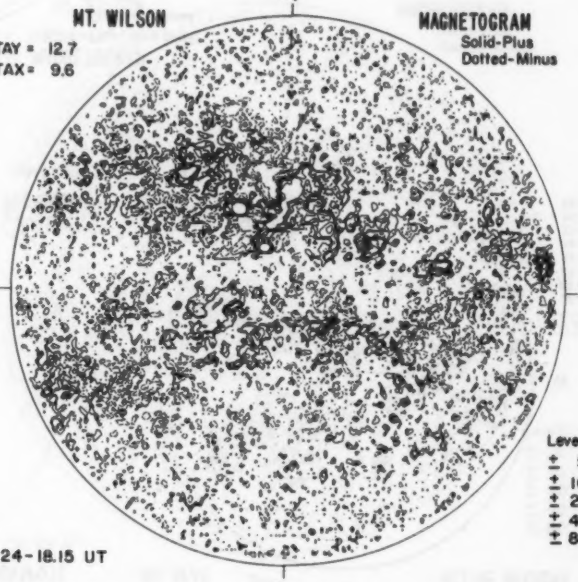


1406 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

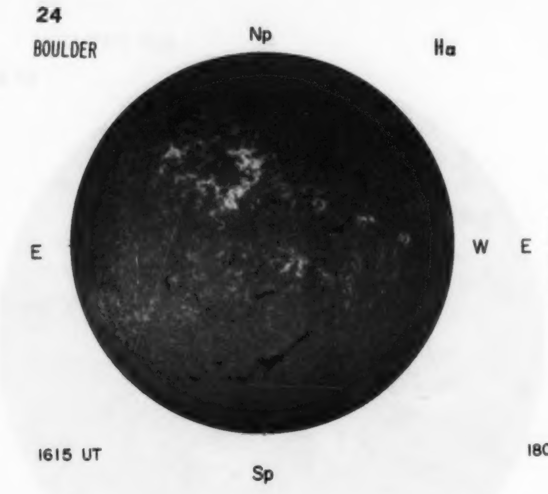
DELTAY = 12.7
DELTAX = 9.6

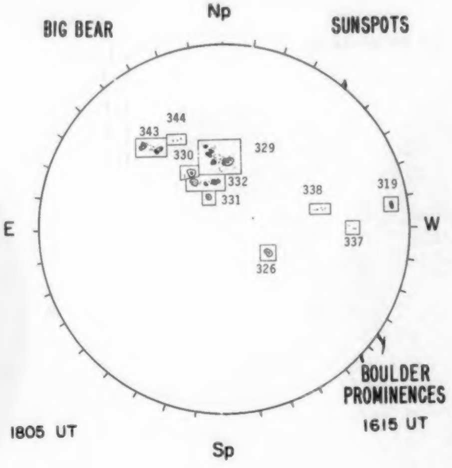


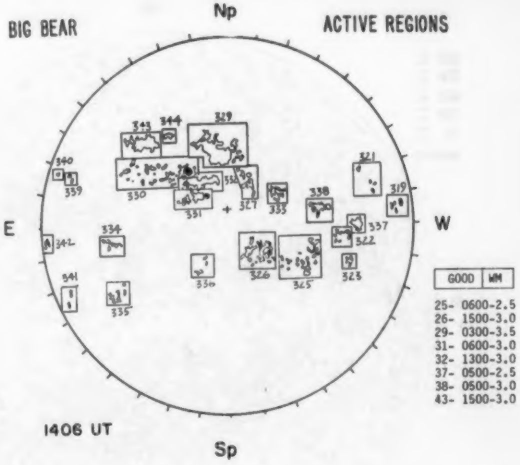
Levels
± 5
± 10
± 20
± 40
± 80

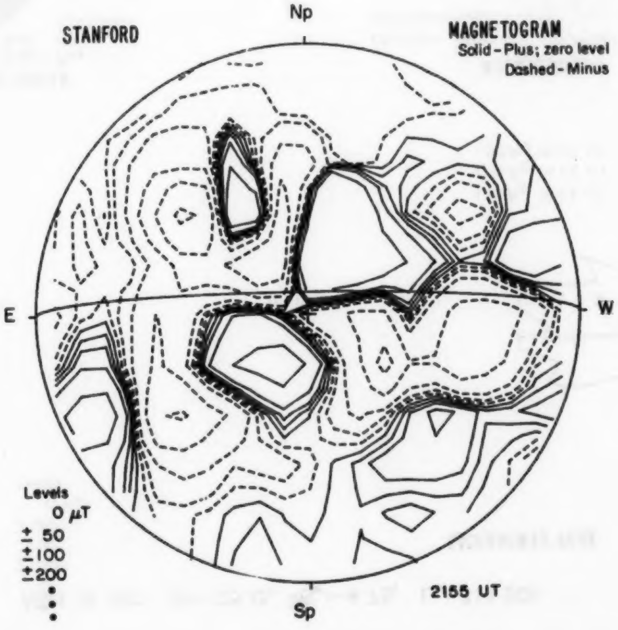
17.24-18.15 UT

24


BOULDER
Hα
Np
E
W
Sp
1615 UT


BIG BEAR
SUNSPOTS
Np
E
W
Sp
343
344
330
329
332
331
338
319
337
326
BOULDER
PROMINENCES
1615 UT
1805 UT

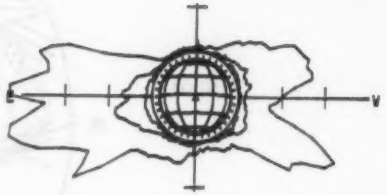

BIG BEAR
ACTIVE REGIONS
Np
E
W
Sp
1406 UT
GOOD | WM
25- 0600-2.5
26- 1500-3.0
29- 0300-3.5
31- 0600-3.0
32- 1300-3.0
37- 0500-2.5
38- 0500-3.0
43- 1500-3.0


STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
Levels
0 μT
± 50
±100
±200
2155 UT

APRIL 25, 1982 (P=-25.15, B_o=-4.75, L_o=314.50)

SACRAMENTO PEAK

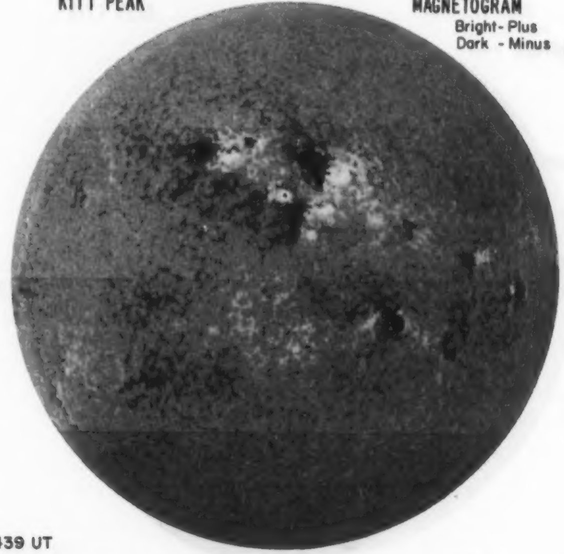
CORONA
5303 Å



1.15 $R_\odot$ 1633 UT
1.35 $R_\odot$ 1613 UT
1.55 $R_\odot$ 1622 UT

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

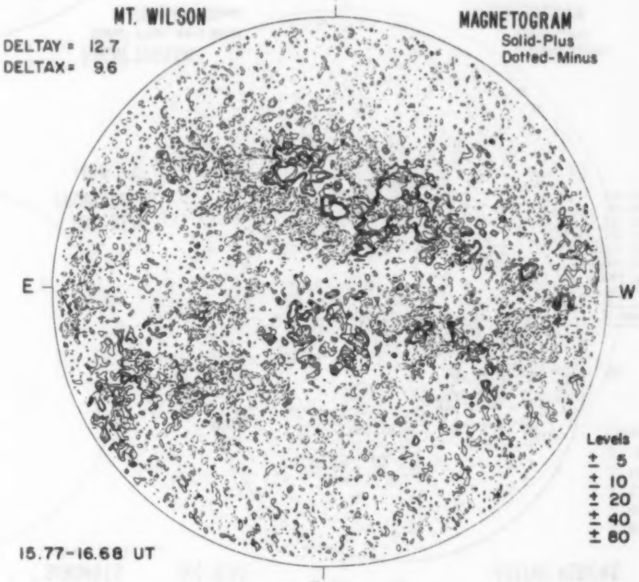


1439 UT

MT. WILSON

DELTAY = 12.7
DELTAX = 9.6

MAGNETOGRAM
Solid-Plus
Dotted-Minus

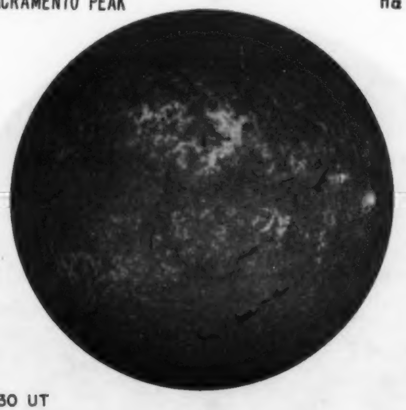


Levels
± 5
± 10
± 20
± 40
± 80

15.77-16.68 UT

25

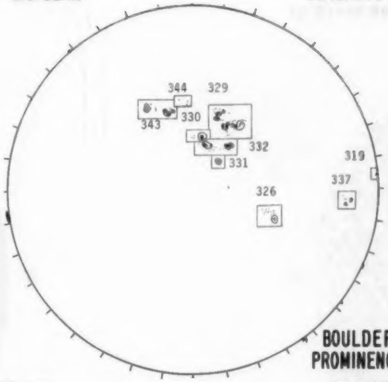
SACRAMENTO PEAK — Np — Hα



E — W

1730 UT — Sp

BIG BEAR — Np — SUNSPOTS



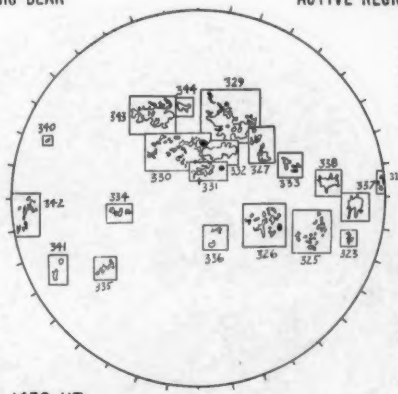
E — W

1700 UT — Sp

BOULDER PROMINENCES

1545 UT

BIG BEAR — Np — ACTIVE REGIONS



E — W

1439 UT — Sp

GOOD	WM

26- 1500-2.5
29- 3000-3.5
30- 0900-2.5
31- 0700-2.5
32- 1300-3.0
37- 0900-3.5
38- 0800-3.0
43- 2200-3.0
44- 0300-3.0

STANFORD — Np — MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

E — NO DATA — W

Sp

Levels
0 μT
± 50
±100
±200

APRIL 26, 1982 (P=-25.02, B_o=-4.66, L_o=301.28)

SACRAMENTO PEAK

CORONA 5303 Å

Np

E NO DATA W

$1.15 R_\odot$
$1.35 R_\odot$
$1.55 R_\odot$

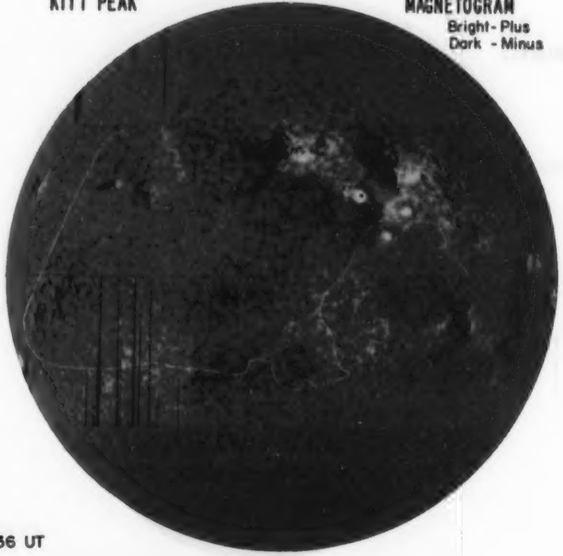
Sp

KITT PEAK

MAGNETOGRAM
Bright-Plus
Dark - Minus

Np

E



W

1536 UT

Sp

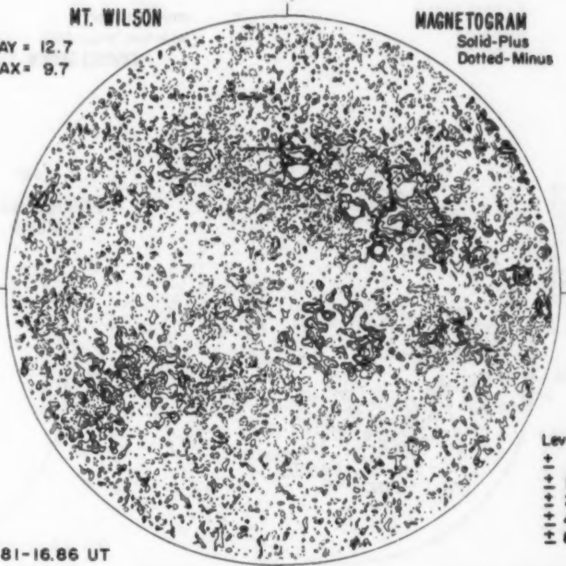
MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.7

Np

E



W

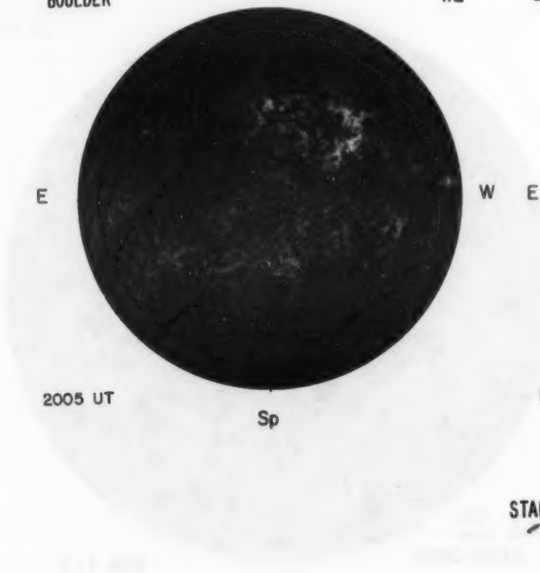
Levels
± 5
± 10
± 20
± 40
± 80

15.81-16.86 UT

Sp

26

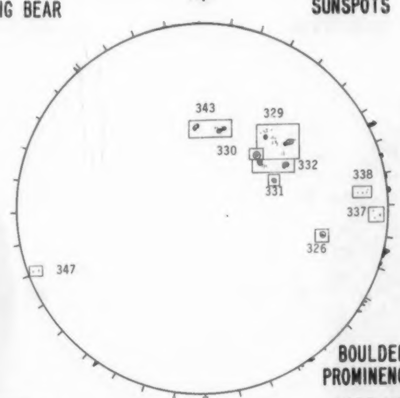
BOULDER



2005 UT

Hα

BIG BEAR SUNSPOTS

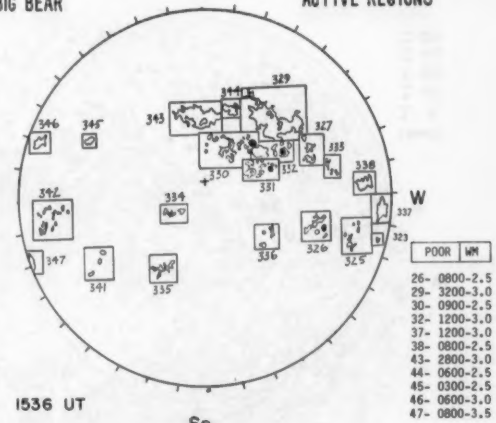


1920 UT

BOULDER PROMINENCES

2005 UT

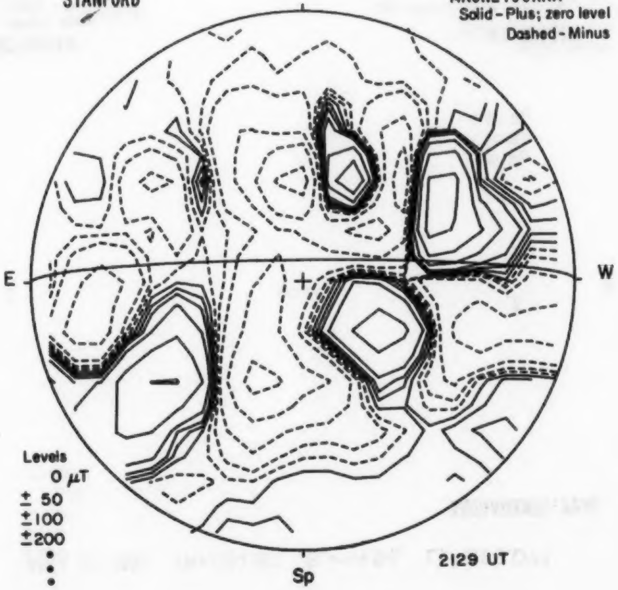
BIG BEAR ACTIVE REGIONS



1536 UT

STANFORD

MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus



2129 UT

APRIL 27, 1982 (P=-24.87, B_o=-4.56, L_o=288.07)

SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

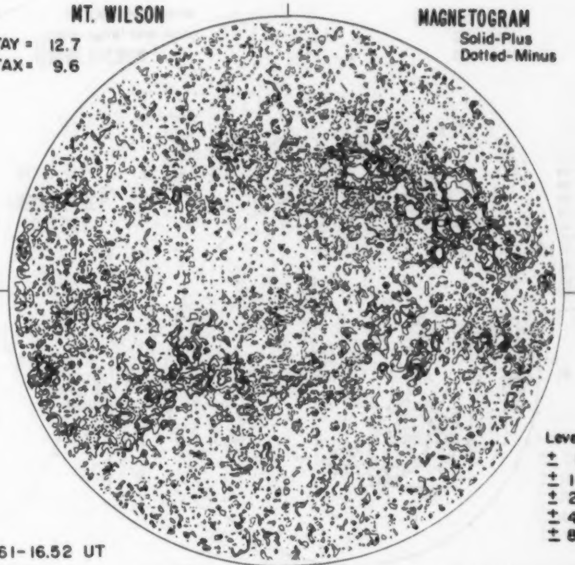
E W

2013 UT Sp

Np

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6

E  W

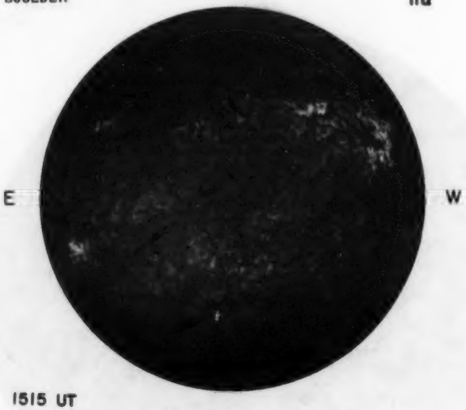
Levels
± 5
± 10
± 20
± 40
± 80

15.61-16.52 UT Sp

27

BOULDER Hα

Np

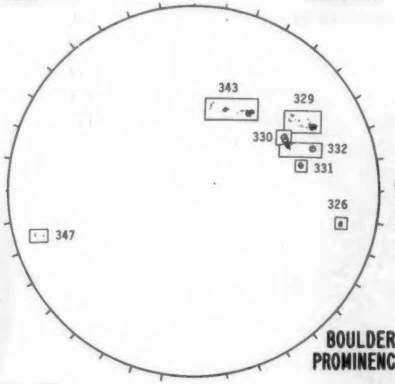


1515 UT

Sp

BIG BEAR SUNSPOTS

Np

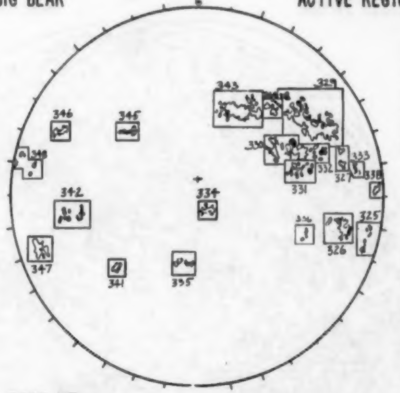


1830 UT

Sp

BIG BEAR ACTIVE REGIONS

Np



2013 UT

Sp

FAIR	WM
26-	1000-2.5
27-	0400-2.5
29-	3400-3.0
30-	0700-2.5
32-	1200-3.0
38-	0600-3.0
43-	2700-3.0
44-	0400-2.5
46-	0700-3.0
47-	1200-3.5

BOULDER PROMINENCES

NO DATA

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np

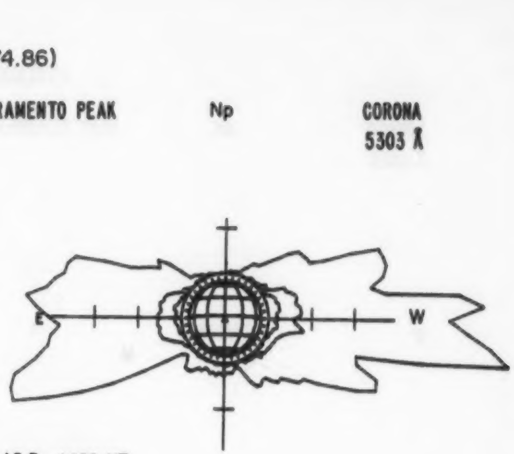
E NO DATA W

Sp

Levels
0 μT
$\pm$ 50
$\pm$100
$\pm$200
•
•
•

APRIL 28, 1982 (P=-24.72, B_o=-4.47, L_o=274.86)

SACRAMENTO PEAK Np CORONA 5303 Å



1.15 $R_\odot$ 1429 UT
1.35 $R_\odot$ 1409 UT
1.55 $R_\odot$ 1419 UT

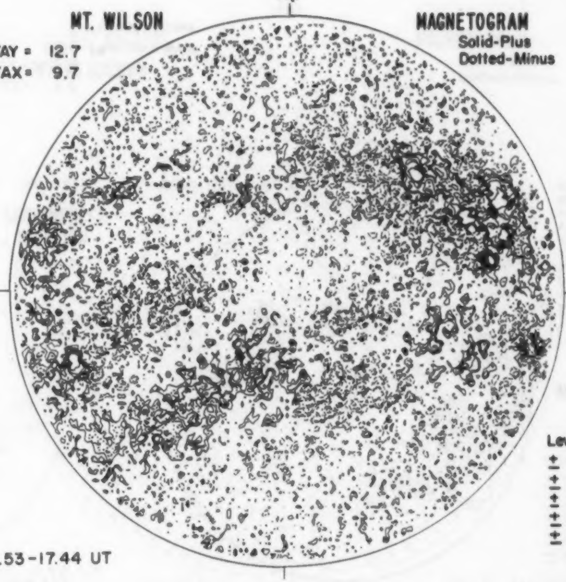
KITT PEAK Np MAGNETOGRAM
Bright-Plus
Dark - Minus

34 UT Sp

Sp
Np

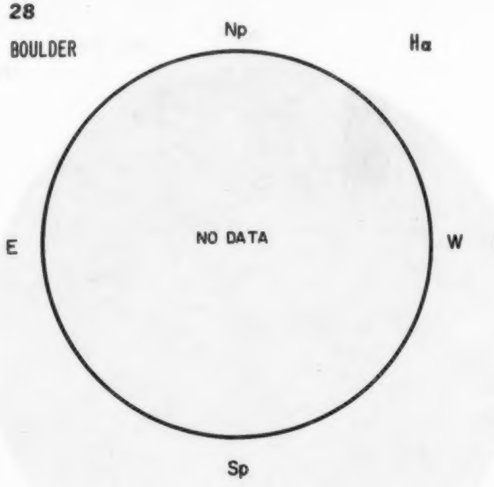
MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

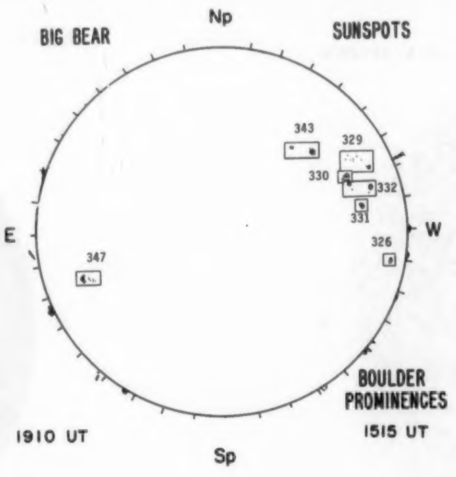
DELTAY = 12.7
DELTAX = 9.7

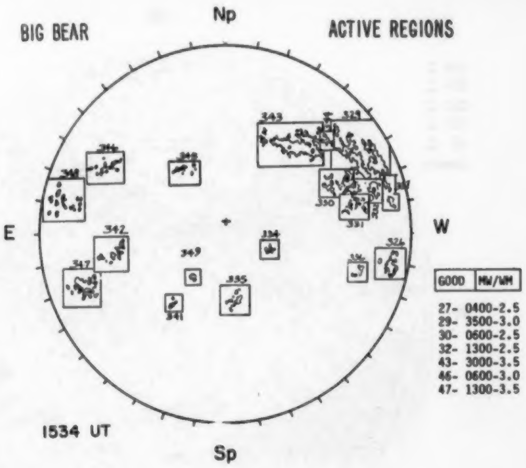


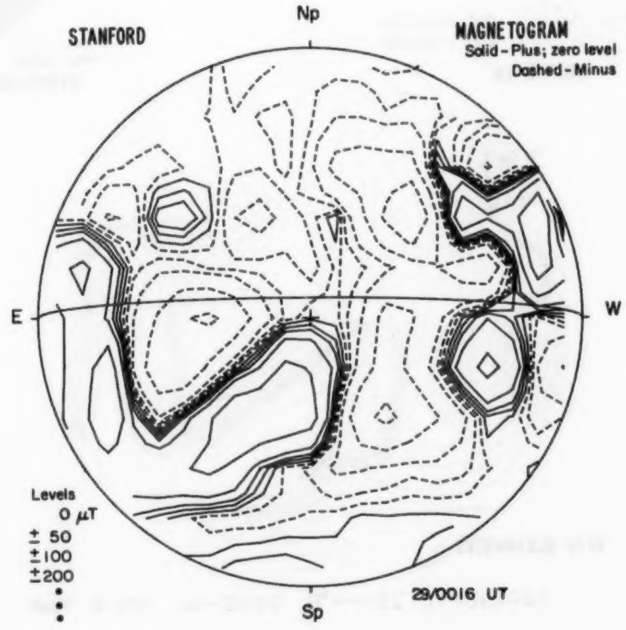
16.53-17.44 UT Sp

28


BOULDER
Hα
Np
E
NO DATA
W
Sp


BIG BEAR
SUNSPOTS
Np
E
W
343
329
330
332
331
326
347
BOULDER
PROMINENCES
1910 UT
1515 UT
Sp


BIG BEAR
ACTIVE REGIONS
Np
E
W
343
342
347
341
349
355
326
331
330
1534 UT
Sp
GOOD MW/WM
27- 0400-2.5
29- 3500-3.0
30- 0600-2.5
32- 1300-2.5
43- 3000-3.5
46- 0600-3.0
47- 1300-3.5


STANFORD
MAGNETOGRAM
Solid - Plus; zero level
Dashed - Minus
Np
E
W
Sp
Levels
0 μT
± 50
±100
±200
29/0016 UT

APRIL 29, 1982 (P=-24.57, B_0=-4.37, L_0=261.64)

SACRAMENTO PEAK | Np | CORONA 5303 Å

E | NO DATA | W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

KITT PEAK

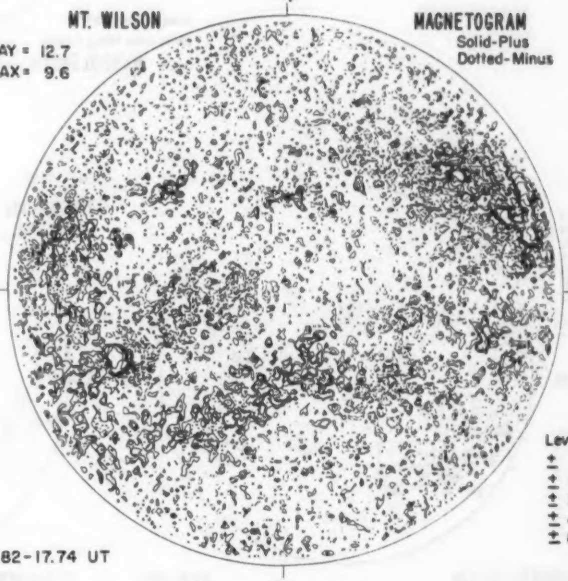
MAGNETOGRAM
Bright - Plus
Dark - Minus

1849 UT

MT. WILSON

MAGNETOGRAM
Solid-Plus
Dotted-Minus

DELTAY = 12.7
DELTAX = 9.6



Levels
± 5
± 10
± 20
± 40
± 80

16.82-17.74 UT

29

SACRAMENTO PEAK Hα

Np

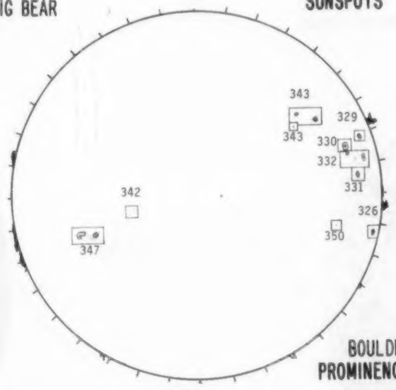
E W

Sp

1510 UT

BIG BEAR SUNSPOTS

Np

E  W

Sp

1640 UT

BOULDER PROMINENCES 1510 UT

BIG BEAR ACTIVE REGIONS

Np

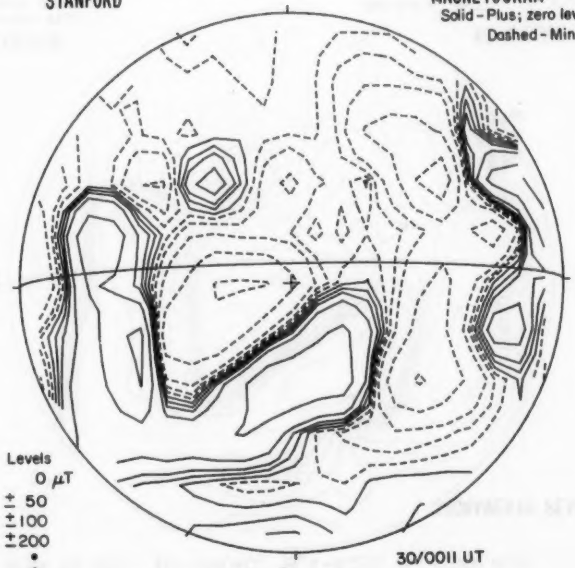
E NO DATA W

Sp

STANFORD MAGNETOGRAM

Solid - Plus; zero level
Dashed - Minus

Np

E  W

Sp

Levels
0 μT
± 50
± 100
± 200

30/0011 UT

APRIL 30, 1982 (P=-24.40, B_o=-4.27, L_o=248.43)

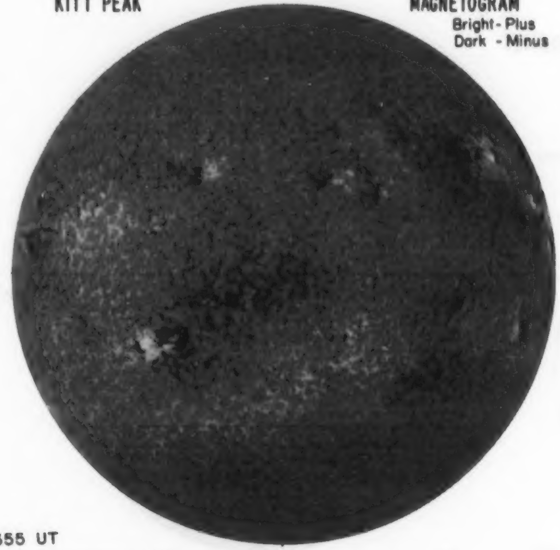
SACRAMENTO PEAK Np CORONA 5303 Å

E NO DATA W

1.15 $R_\odot$
1.35 $R_\odot$
1.55 $R_\odot$

Sp

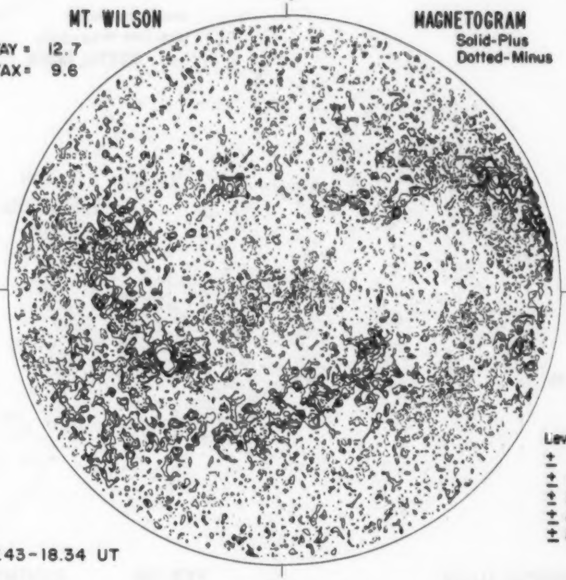
KITT PEAK Np MAGNETOGRAM
Bright - Plus
Dark - Minus

E  W

1355 UT Sp

MT. WILSON Np MAGNETOGRAM
Solid-Plus
Dotted-Minus

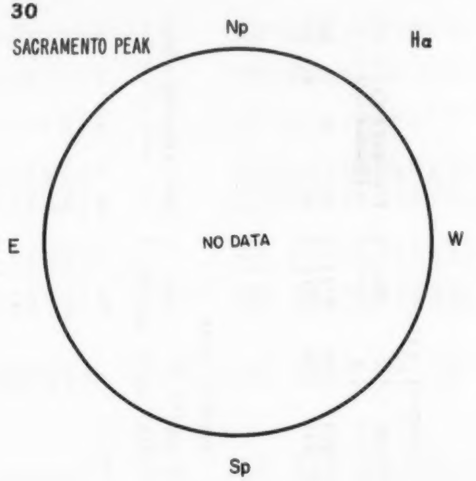
DELTAY = 12.7
DELTAX = 9.6

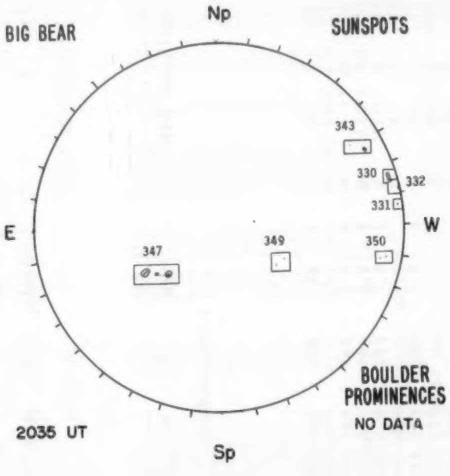
E  W

Levels
± 5
± 10
± 20
± 40
± 80

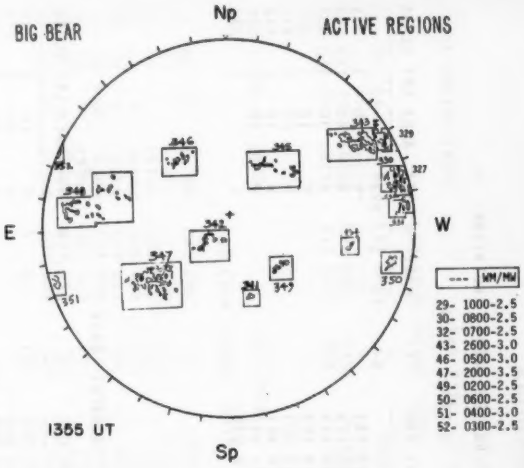
17.43-18.34 UT Sp

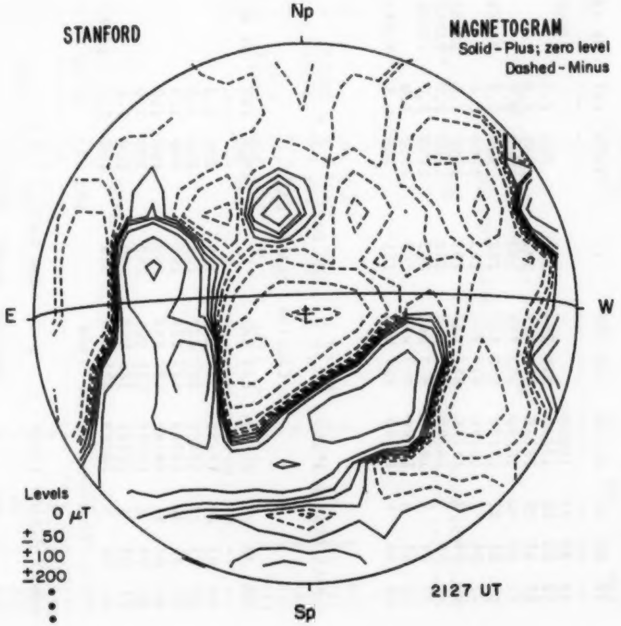
30





BOULDER
PROMINENCES
NO DATA





REGIONS OF SOLAR ACTIVITY

APRIL 1982

HALE REGION 18288 CMP DATE 1.2 RETURN OF REGION 18244 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	26	18288			S12	E65			B	10	1	HRX			
82	03	28	18288	S17 E46	267	1200	2.0		S14 E42				H	30	1	HAX
82	03	29	18288	S17 E30	268	1300	2.0		S15 E29				H	40	1	HAX
82	03	30	18288	S17 E20	269	1500	2.0		S14 E15				B	30	1	HSX
82	03	31	18288	S17 E09	266	1300	2.0		S15 E02				H	10	1	AXX
82	04	1	18288	S17 W05	268	1000	2.0		S16 W01				M	20	5	BXO
82	04	2	18288	S17 W17	267	700	1.5		S20 W21				M	10	1	AXX
82	04	3	18288	S17 W30	264	600	1.5		S12 W40				M	10	1	AXX
82	04	4	18288	S18 W43	266	500	1.5		S18 W45				L		1	AXX
82	04	5	18288	S19 W56	265	400	2.0									
82	04	6	18288	S19 W69	264	200	1.0									

HALE REGION 18290 CMP DATE 1.6

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	27	18290					23054	N17 E67	261	B	2	H	10	2	BXO
82	03	28	18290	N18 E54	261	700	2.0		N19 E53				H	20	4	BXO
82	03	29	18290	N18 E37	261	700	2.0		N19 E40				H	20	5	CRO
82	03	30	18290	N17 E26	263	800	3.0		N18 E22				B	20	6	CSO
82	03	31	18290	N17 E13	262	800	3.0	23054	N18 E09	265	(B)	4	H	30	5	CRO
82	04	1	18290	N17 W00	263	1200	2.5		N19 W04				B	30	12	CRO
82	04	2	18290	N17 W13	263	1100	2.5	23054	N18 W18	267	(B)	5	H	110	8	DAO
82	04	3	18290	N17 W28	262	1100	2.5	23054	N18 W31	267	(B)	4	B	110	5	DSO
82	04	4	18290	N17 W40	263	1500	3.0	23054	N18 W44	267	(B)	4	H		5	CAO
82	04	5	18290	N17 W53	262	1000	3.0		N18 W58				H	20	1	HSX
82	04	6	18290	N17 W66	261	600	1.5	23054	N18 W70	266	AP	3	H	20	1	HSX

HALE REGION 18289 CMP DATE 1.7

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	28	18289	S27 E55	260	300	1.0									
82	03	29	18289	S27 E37	261	300	1.0									
82	03	30	18289	S27 E29	260	500	1.0									
82	03	31	18289	S27 E15	260	400	1.0									
82	04	1	18289	S26 E01	262	300	1.0									
82	04	2	18289	S26 W10	260	200	1.0									
82	04	3	18289	S25 W25	259	200	1.0	23063	S22 W27	263	(AP)	2	L		1	AXX

HALE REGION 18299 CMP DATE 1.8

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	2	18299	N11 W10	260	100	2.0									
82	04	3	18299	N11 W25	259	100	2.0	23062	N12 W23	259	(B)	2	B	20	2	BXO
82	04	4	18299	N11 W36	259	200	2.0	23062	N11 W35	258	(BF)	2	H		2	AXX

HALE REGION 18303 CMP DATE 1.8

			CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	HL NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	4	18303	S13 W37	260	100	1.5									
82	04	5	18303	S14 W50	259	100	2.0									
82	04	6	18303	S14 W64	259	100	2.0									

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HALE REGION 18291 CMP DATE 1.9

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	28	18291	N13	E55	260	200	2.5		N18	E56				R	90	3	DSO
82	03	29	18291	N13	E39	259	100	1.5		N18	E40				B	10	4	BXO

HALE REGION 18300 CMP DATE 4.0

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	3	18300	S08	E03	231	300	2.0	23064	S04	E03	233	(AP)	2	P	70	6	DSO
82	04	4	18300	S08	W09	232	300	2.0	23064	S05	W10	233	(AP)	2	H	60	14	DAO
82	04	5	18300	S09	W23	232	200	1.5		S09	W19				H		1	AXX
82	04	6	18300	S08	W36	231	400	2.0		S08	W36				H	50	6	DSO
82	04	7	18300	S07	W52	233	400	2.0		S06	W49				B	10	2	AXX
82	04	8	18300	S07	W64	234	300	2.0		S06	W62				R	20	1	AXX
82	04	10	18300	S08	W90	234	100	1.0										

HALE REGION 18293 CMP DATE 4.2 RETURN OF REGION 18247 ROTATION 4

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	29	18293	S07	E65	233	800	1.0										
82	03	30	18293	S09	E55	234	1100	1.5										
82	03	31	18293	S09	E43	232	1300	2.0										
82	04	1	18293	S09	E32	231	1400	1.5										
82	04	2	18293	S08	E20	230	1400	1.5		S07	E16				H		1	AXX
82	04	3	18293	S08	E05	229	1000	1.5	23065	S09	E05	231	(B)	4	B	40	6	BXI
82	04	4	18293	S08	W06	229	1000	1.5	23065	S09	W09	232	(B)	3	H	60	14	DAO
82	04	5	18293	S08	W20	229	1000	1.5		S09	W19				H		1	AXX
82	04	6	18293	S08	W32	227	800	1.5	23065	S07	W34	230	B	3	H	50	6	DSO
82	04	7	18293	S08	W45	226	800	2.0	23065	S08	W48	231	(BP)	4	B	10	2	AXX
82	04	8	18293	S08	W59	229	600	1.5		S06	W62				R	20	1	AXX
82	04	10	18293	S08	W85	229	300	1.0										

HALE REGION 18295 CMP DATE 5.3

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	30	18295	S20	E80	209	800	2.5		S20	E70				M	10	1	AXX
82	03	31	18295	S19	E65	210	1400	3.0	23056	S18	E60	214	B	3	H	10	3	BXO
82	04	1	18295	S19	E51	212	1600	3.5		S19	E48				B	40	7	CSO
82	04	2	18295	S19	E37	213	1800	3.5	23056	S18	E37	212	(B)	5	H	190	12	DAO
82	04	3	18295	S19	E21	213	1500	3.5	23056	S18	E22	214	(B)	4	B	180	16	DSI
82	04	4	18295	S18	E08	215	1500	3.0	23056	S18	E07	216	(B)	4	H	170	30	EAI
82	04	5	18295	S18	W05	214	1200	3.0		S18	W06				H	100	17	ESO
82	04	6	18295	S18	W19	214	1200	3.0	23056	S18	W19	215	B	4	H	60	12	CSO
82	04	7	18295	S18	W33	214	1400	3.0	23056	S18	W32	215	(B)	4	R	110	6	CSO
82	04	8	18295	S18	W48	218	1500	3.0		S18	W51				H	40	1	HSX
82	04	9	18295						23056	S19	W64	220	AP	4	B	20	1	HSX
82	04	10	18295	S18	W72	216	1500	3.0	23056	S17	W77	220	AP	3	H	60	1	HSX
82	04	11	18295	S21	W85	216	400	2.0		S18	W81				L		1	AXX

HALE REGION 18296 CMP DATE 6.3 RETURN OF REGION 18248 ROTATION 2

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	30	18296	S13	E85	204	400	2.5										
82	03	31	18296	S13	E75	200	400	1.5		S18	E68				L		1	AXX
82	04	1	18296	S13	E62	201	400	1.0		S18	E60				M	70	8	CRO
82	04	2	18296	S12	E48	202	500	2.5										
82	04	3	18296	S12	E31	203	400	2.0		S12	E26				M	10	4	BXO

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HALE REGION 18296 (CONT) CMP DATE 6.3 RETURN OF REGION 18248 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	4	18296	S11	E20	203	500	1.5	23068	S11	E17	206	(B)	2	H	8010	3	BXO
82	04	5	18296	S11	E07	202	400	1.0		S10	E10				L		1	AXX
82	04	6	18296	S11	W06	201	500	1.5										
82	04	7	18296	S11	W21	202	300	1.0										
82	04	8	18296	S11	W34	204	200	1.0										
82	04	10	18296	S11	W60	204	100	1.0										

HALE REGION 18297 CMP DATE 6.4

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	03	31	18297	N08	E80	195	500	2.5										
82	04	1	18297	N08	E65	198	600	2.0		N05	E70				B	10	1	AXX
82	04	2	18297	N08	E50	200	500	2.5	23059	N08	E48	201	(AP)	3	H		1	AXX
82	04	3	18297	N08	E35	199	500	2.5	23059	N08	E35	201	(B)	3	B	10	3	BXI
82	04	4	18297	N08	E23	200	500	2.5	23059	N08	E22	201	(BY)	3	H	20	9	BXO
82	04	5	18297	N08	E09	200	400	2.0		N09	E09				H	30	6	DSO
82	04	6	18297	N08	W05	200	400	2.0	23059	N08	W03	199	B	3	H	30	5	DSO
82	04	7	18297	N08	W20	201	500	2.0	23059	N08	W16	199	(BP)	4	B	20	1	HSX
82	04	8	18297	N08	W33	203	500	2.0		N09	W32				H	10	1	AXX
82	04	9	18297						23059	N09	W46	202	AP	1	R	10	1	AXX

HALE REGION 18309 CMP DATE 6.9

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	6	18309	S18	E02	193	200	2.0	23070	S18	E04	192	X	3	H	10	3	BXO

HALE REGION 18315 CMP DATE 7.1

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	11	18315	S13	W60	191	400	2.5		S12	W58				H	20	3	CRO
82	04	12	18315	S14	W73	190	500	2.5	23081	S13	W75	192	(AP)	2	H		1	AXX

HALE REGION 18298 CMP DATE 7.6 RETURN OF REGION 18254 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	1	18298	N03	E78	185	1300	2.5		N05	E70				B	10	1	AXX
82	04	2	18298	N04	E66	184	2500	2.5	23060	N03	E60	189	(BF)	4	H	60	3	CSO
82	04	3	18298	N04	E51	183	2500	2.5	23060	N04	E47	189	(BF)	4	B	30	2	CRO
82	04	4	18298	N04	E40	183	2100	2.5	23069	N03	E48	175	(AF)	2				
82	04	4	18298	N04	E40	183	2100	2.5	23060	N04	E34	189	(BF)	4	H	100	6	DAO
82	04	5	18298	N04	E27	182	2200	2.5		N05	E21				H	50	4	DAO
82	04	6	18298	N04	E12	183	2200	2.5	23069	N03	E22	174	X	2	H	30	1	HSX
82	04	6	18298	N04	E12	183	2200	2.5	23060	N04	E08	188	AP	4	H	60	7	DSO
82	04	7	18298	N04	W03	184	2000	2.5	23060	N05	W06	189	(AP)	4	B	60	4	CAI
82	04	8	18298	N04	W15	185	1500	2.5		N06	W22				B	100	10	DSO
82	04	9	18298						23060	N04	W34	190	B	4	B	80	20	DSO
82	04	10	18298	N04	W42	186	1200	2.0	23080	N04	W27	170	(AP)	2	H		1	AXX
82	04	10	18298	N04	W42	186	1200	2.0	23060	N05	W47	190	(B)	4	H	100	16	DAO
82	04	11	18298	N04	W55	186	1200	2.0		N06	W59				H	50	5	DSO
82	04	12	18298	N04	W70	187	1300	2.5	23060	N07	W71	188	(B)	3	H	20	4	BXO

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HALE REGION 18301 CMP DATE 9.4 NEW, IN LOCATION OF REGION 18255

			CALCIUM PLAGE DATA						SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	3	18301	S16	E80	154	2400	3.5	23067	S15	E77	159	(AP)	3	B	40	4	BXI
82	04	4	18301	S16	E68	155	3000	3.5	23067	S15	E65	158	(B)	4	H	170	13	DAO
82	04	5	18301	S16	E51	158	2700	3.0		S14	E51				H	120	10	DAO
82	04	6	18301	S17	E37	158	2500	3.0	23067	S13	E37	159	BP	5	H	190	10	DAO
82	04	7	18301	S17	E23	158	2500	3.0	23067	S13	E23	160	(BP)	4	B	100	6	DSI
82	04	8	18301	S17	E10	160	2400	3.0		S12	E10				H	40	14	CSO
82	04	9	18301						23067	S13	W04	160	(B)	4	B	20	13	CSO
82	04	10	18301	S17	W15	159	2300	2.5	23067	S14	W17	160	(BP)	4	H	30	11	BXO
82	04	11	18301	S17	W28	159	2400	2.5		S13	W29				H	20	4	BXO
82	04	12	18301	S18	W42	159	1800	2.5	23067	S14	W42	159	(AP)	2	H	10	2	BXO
82	04	13	18301						23067	S16	W55	159	(AP)	3	H	10	3	AXX
82	04	14	18301	S18	W70	161	1600	2.5										

HALE REGION 18302 CMP DATE 9.4

			CALCIUM PLAGE DATA						SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	3	18302	N08	E75	159	1800	2.5	23066	N08	E75	161	(AP)	4	B	20	1	AXX
82	04	4	18302	N07	E65	158	1800	2.5	23066	N08	E62	161	(B)	4	H	70	2	HSX
82	04	5	18302	N07	E50	159	1100	2.5		N08	E46				H	50	1	HSX
82	04	6	18302	N07	E35	160	1300	2.5	23066	N08	E38	158	B	4	H	30	3	DSO
82	04	7	18302	N07	E20	161	1500	2.5	23066	N09	E24	159	(B)	4	B	20	5	HRX
82	04	8	18302	N07	E09	161	1500	2.5		N08	E07				H	50	1	HSX
82	04	9	18302						23066	N08	W05	161	(B)	3	B	30	10	DSO
82	04	10	18302	N07	W15	159	1500	2.5	23066	N07	W22	165	(AP)	3	H		1	AXX
82	04	11	18302	N07	W29	160	1300	2.5		N07	W34				H		1	AXX
82	04	12	18302	N07	W43	160	1300	2.5		N07	W44				B		1	AXX
82	04	14	18302	N07	W70	161	900	2.0										

HALE REGION 18304 CMP DATE 10.3

			CALCIUM PLAGE DATA						SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	5	18304	S06	E65	144	100	1.0										
82	04	6	18304	S05	E55	140	100	1.0										
82	04	7	18304	S06	E37	144	300	2.0	23073	S05	E39	144	(B)	2	M	20	4	BXO
82	04	8	18304	S07	E23	147	300	1.5		S07	E25				H		1	AXX
82	04	10	18304	S07	W04	148	200	1.0										
82	04	11	18304	S07	W17	148	200	1.0		S12	W22				L	20	3	CRO
82	04	12	18304	S07	W30	147	200	1.0		S12	W36				L		1	AXX
82	04	14	18304	S07	W57	148	100	1.0		S05	W50				H	10	2	BXO

HALE REGION 18318 CMP DATE 11.1

			CALCIUM PLAGE DATA						SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	13	18318						23087	S05	W34	138	(B)	2	H	10	2	BXO
82	04	14	18318	S04	W47	138	600	2.0	23087	S05	W49	140	(B)	3	H	10	2	BXO
82	04	15	18318	S04	W60	138	600	2.0										
82	04	16	18318	S04	W75	139	500	2.5										

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HALE REGION 18312 CMP DATE 11.4

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	04	8	18312	S05	E37	133	300	1.5										
82	04	10	18312	S04	E10	134	200	1.0										

HALE REGION 18305 CMP DATE 11.9 RETURN OF REGION 18262 ROTATION 4

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	04	5	18305	N02	E80	129	300	1.0										
82	04	6	18305	N03	E70	125	500	2.0										
82	04	7	18305	N03	E58	123	1500	2.5										
82	04	8	18305	N03	E44	126	1200	2.5										
82	04	10	18305	N02	E20	124	1200	2.5										
82	04	11	18305	N02	E04	127	900	2.0										
82	04	12	18305	N02	W10	127	800	2.0	23082	N04	W06	123	(AP)	2				
82	04	14	18305	N02	W37	128	900	2.0										
82	04	15	18305	N02	W50	128	600	2.0										
82	04	16	18305	N02	W63	127	500	1.5										

HALE REGION 18292 CMP DATE 12.3

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	04	9	18292						23076	N16	E35	121	(B)	4	B	30	6	BXI
82	04	10	18292	N17	E24	120	900	3.5	23076	N16	E22	121	(B)	5	H	200	14	DAO
82	04	11	18292	N17	E09	122	1700	3.5		N16	E09				H	280	30	ESI
82	04	12	18292	N17	W05	122	2000	3.5	23076	N15	W04	121	(B)	5	H	510	33	EAI
82	04	13	18292						23076	N14	W17	121	(D)	5	H	440	17	EKI
82	04	14	18292	N17	W31	122	2000	3.5	23076	N14	W31	122	(D)	5	H	440	23	EAO
82	04	15	18292	N17	W44	122	2700	3.5	23076	N14	W44	121	(D)	5	H	290	25	EAI
82	04	16	18292	N17	W57	121	2800	3.0	23076	N13	W58	122	(B)	5	H	110	11	EAO
82	04	17	18292	N16	W70	122	2300	2.5	23076	N13	W70	121	(B)	4	H	210	1	HHX
82	04	18	18292	N16	W83	121	1200	2.0	23076	N12	W80	118	(B)	3	H	220	1	HSX

HALE REGION 18307 CMP DATE 12.4 RETURN OF LEADING POLARITY OF 18264 ROTATION 2

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	04	5	18307	S02	E80	129	500	1.0										
82	04	6	18307	S03	E77	118	400	1.5	23071	S04	E77	119	AP	3	H	70	1	HSX
82	04	7	18307	S04	E62	119	300	1.5	23071	S03	E64	119	(AP)	4	B	80	1	HSX
82	04	8	18307	S04	E50	120	200	1.5		S04	E51				H	100	2	HSX
82	04	9	18307						23071	S03	E37	119	(AP)	5	B	80	1	HSX
82	04	10	18307	S04	E24	120	200	2.0	23071	S03	E23	120	(BP)	4	H	100	2	CSO
82	04	11	18307	S04	E10	121	600	2.5		S03	E09				H	100	5	CSO
82	04	12	18307	S04	W03	120	600	2.5	23071	S04	W03	120	(BF)	4	H	90	4	CAO
82	04	13	18307						23071	S04	W17	121	(BP)	4	H	80	3	CAO
82	04	14	18307	S04	W30	121	1000	2.0	23071	S03	W30	121	(BF)	4	H	90	2	DAO
82	04	15	18307	S04	W43	121	700	2.5	23071	S04	W43	120	(D)	4	H	110	6	DAO
82	04	16	18307	S04	W57	121	500	2.0	23071	S03	W57	121	(BP)	3	H	60	7	CAO
82	04	17	18307	S04	W70	122	400	2.0	23071	S03	W70	121	(AP)	3	M	40	5	BXO

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HALE REGION 18306 CMP DATE 12.9 RETURN OF REGION 18261 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA										
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	6	18306	N14	E80	115	1200	2.5	23072	N12	E78	118	AP	3	H	220	1	HSX
82	04	7	18306	N12	E70	111	2800	3.5	23072	N12	E64	119	(AP)	5	B	170	1	HHX
82	04	8	18306	N12	E56	114	2300	3.0		N14	E55				H	200	3	CHO
82	04	9	18306						23072	N13	E37	119	(BP)	5	B	180	6	CSO
82	04	10	18306	N12	E30	114	1800	2.5	23072	N12	E25	118	(AP)	6	H	290	2	CSO
82	04	11	18306	N12	E16	115	1600	2.5		N12	E12				H	260	1	HKX
82	04	12	18306	N12	E03	114	1400	2.0	23072	N11	W01	118	(BP)	5	H	510	33	EAI
82	04	14	18306	N12	W23	114	1500	3.0		N12	W27				H	280	4	CHO
82	04	15	18306	N12	W35	113	1700	2.5		N11	W40				H	240	1	HHX
82	04	16	18306	N12	W47	111	1600	3.0		N12	W54				H	220	1	HHX
82	04	17	18306	N13	W60	112	1400	2.5		N12	W68				H	210	1	HHX
82	04	18	18306	N13	W73	111	1200	2.0		N12	W80				H	220	1	HSX
82	04	19	18306	N13	W86	111	400	2.0										

HALE REGION 18308 CMP DATE 13.0 RETURN OF REGION 18264 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	6	18308	S07	E78	117	1800	3.5		S07	E76				H	70	1	HSX
82	04	7	18308	S09	E69	112	2700	3.0	23074	S07	E67	116	(AF)	3	B	80	1	HSX
82	04	8	18308	S09	E58	112	4000	3.0		S08	E65				H		1	AXX
82	04	9	18308						23074	S08	E40	116	(AP)	3	B	10	2	BXO
82	04	10	18308	S10	E31	113	4000	3.0	23074	S07	E26	117	(BP)	3	H	40	20	BXO
82	04	11	18308	S10	E17	114	3600	3.0		S08	E16				H	80	20	BXO
82	04	12	18308	S10	E04	113	4400	3.0	23074	S10	E05	112	(BP)	3	H	30	8	BXO
82	04	13	18308						23074	S08	W11	115	(BP)	3	H	40	13	BXO
82	04	14	18308	S10	W23	114	4500	3.0	23074	S08	W24	115	(BP)	3	H	10	5	BXO
82	04	14	18308	S10	W23	114	4500	3.0	23090	S18	W30	121	(B)	3	B	10	2	BXI
82	04	15	18308	S10	W36	114	4000	2.5	23074	S08	W38	115	(B)	3	H	110	6	DAO
82	04	16	18308	S10	W48	112	3800	2.5	23074	S09	W56	120	(AP)	2	H		1	AXX
82	04	16	18308	S10	W48	112	3800	2.5	23093	S13	W45	109	(AP)	2	H		1	AXX
82	04	17	18308	S10	W61	113	3500	2.5										
82	04	18	18308	S10	W74	112	2500	2.0										
82	04	19	18308	S10	W85	110	800	2.0										
82	04	20	18308	S09	W90	102	200	1.5										

HALE REGION 18311 CMP DATE 13.4 RETURN OF REGIONS 18265 AND 18266 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	7	18311	N05	E80	101	700	1.5	23075	N05	E78	105	(AP)	3	R	40	2	HAX
82	04	8	18311	N05	E65	105	800	2.0		N07	E65				H	50	1	HSX
82	04	9	18311						23075	N04	E49	107	(AP)	4	B	30	1	HSX
82	04	10	18311	N05	E38	106	700	1.5	23075	N04	E36	107	(AP)	4	H	60	2	HAX
82	04	11	18311	N05	E24	107	400	2.0		N03	E24				H.	70	1	HAX
82	04	12	18311	N04	E10	107	400	2.0	23075	N02	E11	106	(AP)	3	H	50	1	HSX
82	04	13	18311						23075	N02	W02	106	(BF)	4	H	40	6	CAO
82	04	14	18311	N04	W16	107	600	2.0	23075	N02	W16	107	(AP)	4	H	30	1	HSX
82	04	15	18311	N04	W29	107	600	2.0	23075	N02	W29	106	(AP)	4	H	40	2	HAX
82	04	15	18311	N04	W29	107	600	2.0	23092	S01	W31	108	(AP)	2	H		1	AXX
82	04	16	18311	N04	W42	106	500	1.5	23075	N03	W42	106	(AP)	4	H	20	1	AXX
82	04	16	18311	N04	W42	106	500	1.5	23094	S03	W38	102	(AF)	2	L	20	2	HSX
82	04	17	18311	N04	W55	107	300	1.5	23075	N02	W56	107	(AP)	3	H		1	AXX
82	04	18	18311						23075	N03	W69	107	(AP)	3	M	20	1	AXX

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HALE REGION 18310 CMP DATE 14.0

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	7	18310	S28	E80	101	500	4.0		S27	E80				M	80	2	DSO
82	04	8	18310	S28	E72	98	1600	3.5		S27	E70				H	100	4	DSO
82	04	9	18310						23077	S27	E57	99	(D)	4	B	120	15	DSO
82	04	10	18310	S27	E45	99	1500	3.5	23077	S27	E43	100	(D)	4	H	250	17	EAI
82	04	11	18310	S27	E33	98	1500	3.5		S26	E32				H	260	10	DAO
82	04	12	18310	S27	E19	98	1400	2.5	23077	S27	E18	99	(B)	5	H	210	18	CAO
82	04	12	18310	S27	E19	98	1400	2.5	23084	S19	E09	108	(AF)	2	H		1	AXX
82	04	13	18310						23077	S27	E23	81	(BP)	4	M	200	13	EAO
82	04	14	18310	S27	W08	99	1400	2.5	23077	S27	W11	102	(BP)	5	H	140	3	HAX
82	04	15	18310	S27	W20	98	1300	3.0	23077	S27	W24	101	(BP)	4	H	130	4	CAO
82	04	16	18310	S27	W33	97	1300	3.0	23077	S26	W36	100	(AP)	5	H	130	5	HAX
82	04	17	18310	S27	W46	98	1000	2.5	23077	S27	W48	99	(BP)	4	H	120	1	HAX
82	04	18	18310	S27	W60	98	900	2.5	23077	S27	W61	99	(AP)	3	H	130	1	HSX
82	04	19	18310	S27	W74	99	900	2.5	23077	S27	W76	101	(AP)	3	H	60	1	HSX
82	04	20	18310	S28	W87	99	200	2.0		S26	W81				M	170	1	HSX

HALE REGION 18324 CMP DATE 15.1

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	16	18324	N22	W20	84	200	2.0	23095	N22	W20	84	(B)	3	H	10	2	AXX
82	04	17	18324	N22	W33	85	200	1.5	23095	N20	W34	85	(AP)	3	H		1	AXX

HALE REGION 18313 CMP DATE 15.4 RETURN OF REGION 18267 ROTATION 2

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	9	18313						23078	N17	E73	83	AP	3	B	20	1	HSX
82	04	10	18313	N16	E62	82	200	1.5	23078	N16	E60	83	(AP)	3	H	50	1	HSX
82	04	11	18313	N15	E49	82	200	1.0		N17	E49				H	40	1	HSX
82	04	12	18313	N15	E35	82	200	1.0	23078	N16	E36	81	(AP)	4	H	50	1	HSX
82	04	13	18313						23078	N16	E23	81	(AP)	4	H	20	1	HSX
82	04	13	18313						23088	N22	E21	83	(B)	2	H	10	2	AXX
82	04	14	18313	N16	E10	81	200	1.0	23088	N22	E07	84	(AP)	2	H		1	AXX
82	04	14	18313	N16	E10	81	200	1.0	23078	N16	E10	81	(AP)	4	H	30	1	HSX
82	04	15	18313	N16	W03	81	200	1.0	23078	N16	W02	79	(AP)	4	H	10	1	AXX
82	04	16	18313	N17	W16	80	100	1.0	23078	N17	W16	80	(AP)	4	H	10	2	AXX
82	04	17	18313	N17	W29	81	100	1.0	23078	N17	W28	79	(AP)	3	H		1	AXX

HALE REGION 18314 CMP DATE 15.6 RETURN OF REGION 18268 ROTATION 2

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	9	18314						23079	S08	E78	78	(BF)	3	B	160	3	CSO
82	04	10	18314	S12	E67	77	2700	2.0	23079	S10	E66	77	(B)	5	H	320	5	DAO
82	04	11	18314	S13	E54	77	2500	2.5		S09	E52				H	300	13	DHO
82	04	12	18314	S13	E40	77	2700	2.5	23079	S10	E39	78	(BY)	4	H	260	8	DKO
82	04	13	18314						23079	S10	E25	79	(B)	5	H	260	5	DSO
82	04	14	18314	S13	E12	79	2400	2.5	23079	S10	E11	80	(BF)	5	H	240	4	DSO
82	04	15	18314	S14	W00	78	2400	3.0	23079	S10	W02	79	(B)	5	H	230	7	DAO
82	04	16	18314	S12	W13	77	2400	3.5	23079	S08	W12	76	(BF)	5	H	200	7	CSO
82	04	17	18314	S12	W26	78	2300	2.5	23079	S09	W26	77	(BP)	5	H	180	1	HAX
82	04	18	18314	S12	W40	78	1700	2.5	23079	S08	W37	75	(BP)	5	H	180	1	HHX
82	04	19	18314	S12	W53	78	1600	2.0	23079	S09	W51	76	(BF)	4	H	200	1	HHX
82	04	20	18314	S13	W66	78	1500	2.0	23079	S08	W65	76	(AP)	4	H	180	1	HSX
82	04	21	18314	S13	W82	77	800	1.0	23079	S08	W76	74	(AP)	2	H	70	1	HSX

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HALE REGION 18316 CMP DATE 17.4 RETURN OF REGION 18269 ROTATION 3

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	11	18316	N15	E74	57	300	1.5		N15	E72				H		1	AXX
82	04	12	18316	N15	E60	57	600	2.0	23085	N13	E58	59	(AP)	2	H		1	AXX
82	04	14	18316	N15	E35	56	500	1.5										
82	04	15	18316	N15	E22	56	500	1.5										
82	04	16	18316	N15	E10	54	500	1.0										
82	04	17	18316	N15	W03	55	300	1.5										
82	04	18	18316	N16	W16	54	300	1.5										
82	04	19	18316	N15	W29	54	300	1.0										
82	04	20	18316	N15	W42	54	300	1.0										
82	04	21	18316	N15	W58	53	200	1.0										

HALE REGION 18320 CMP DATE 17.4

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	14	18320	S18	E38	53	400	3.5	23091	S16	E39	52	(B)	3	H	10	3	BXO
82	04	15	18320	S17	E25	53	700	3.5	23091	S17	E25	52	(B)	4	H	60	14	CAO
82	04	16	18320	S17	E11	53	900	3.5	23091	S17	E12	52	(BY)	4	H	200	21	DAI
82	04	17	18320	S17	W02	54	1000	3.5	23091	S18	W01	52	(D)	4	H	100	12	DSO
82	04	18	18320	S17	W15	53	1400	3.5	23091	S18	W13	51	(BY)	4	H	140	24	DAI
82	04	19	18320	S18	W27	52	1400	3.0	23091	S19	W27	52	(D)	4	H	140	13	EAI
82	04	20	18320	S18	W40	52	1600	3.5	23091	S18	W40	51	(BY)	3	H	90	10	ESO
82	04	21	18320	S18	W57	52	1700	3.5	23091	S19	W57	55	(AF)	2	H	20	5	DSO
82	04	22	18320	S18	W67	53	1700	3.0		S19	W63				L	10	4	BXO
82	04	23	18320	S17	W80	52	1000	2.5										

HALE REGION 18317 CMP DATE 18.4

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	12	18317	S24	E78	39	900	2.5	23086	S23	E71	46	(AP)	2	H		1	AXX
82	04	13	18317						23086	S23	E59	45	(AP)	2	B		1	AXX
82	04	14	18317	S24	E54	37	900	2.5	23086	S24	E46	45	(AP)	3	H		1	AXX
82	04	15	18317	S24	E40	38	600	2.5	23086	S24	E34	43	(AP)	2	H		1	AXX
82	04	16	18317	S24	E27	37	600	2.5		S24	E28				L	20	1	AXX
82	04	17	18317	S24	E11	41	400	2.0										
82	04	18	18317	S24	W02	40	300	1.5										
82	04	19	18317	S24	W15	40	500	2.0	23100	S23	W13	38	(AP)	2	B		1	AXX
82	04	20	18317	S24	W27	39	400	2.0										
82	04	21	18317	S24	W44	39	500	1.5		S19	W46				L	30	10	BXI
82	04	22	18317	S24	W54	40	300	1.5		S19	W63				L	10	4	BXO
82	04	23	18317	S24	W67	39	100	1.0										

HALE REGION 18319 CMP DATE 19.7 RETURN OF REGION 18272 ROTATION 3

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	13	18319						23089	N03	E78	26	(AP)	3	H	250	1	HSX
82	04	14	18319	N06	E70	21	1200	2.5	23089	N03	E65	26	(AP)	5	H	270	1	HSX
82	04	15	18319	N05	E56	22	1200	2.5	23089	N03	E51	26	(BP)	5	H	360	3	CKO
82	04	16	18319	N05	E42	22	1200	2.0	23089	N05	E38	26	(BP)	5	H	300	2	CHO
82	04	17	18319	N04	E27	25	1000	2.5	23089	N04	E25	26	(AP)	5	H	260	1	HHX
82	04	18	18319	N04	E15	23	800	2.5	23089	N04	E12	26	(AP)	5	H	290	2	CKO
82	04	19	18319	N04	E01	24	700	2.5	23089	N04	W01	26	(AP)	5	H	240	1	HHX
82	04	20	18319	N04	W11	23	700	2.5	23089	N04	W15	26	(AP)	5	H	260	1	HHX
82	04	21	18319	N04	W30	25	700	2.0	23089	N04	W27	25	(AP)	4	H	220	1	HHX
82	04	22	18319	N04	W40	26	600	2.0	23089	N04	W43	28	(AP)	4	B	140	1	HSX
82	04	23	18319	N04	W53	25	400	2.0	23089	N04	W56	27	(AP)	4	B	170	1	HSX
82	04	24	18319	N04	W66	25	300	2.0	23089	N04	W70	28	(AP)	4	H	310	1	HHX
82	04	25	18319	N04	W80	26	300	1.0	23089	N04	W85	30	(AP)	4	H	140	1	HSX

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HALE REGION 18321 CMP DATE 20.9 RETURN OF REGION 18275 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	15	18321	N07	E70	8	400	1.5										
82	04	16	18321	N10	E56	8	400	1.0										
82	04	17	18321	N09	E42	10	300	1.0										
82	04	18	18321	N09	E31	7	600	1.0										
82	04	19	18321	N10	E18	7	600	1.0										
82	04	20	18321	N10	E04	8	500	1.0										
82	04	21	18321	N10	W14	9	500	1.5										
82	04	22	18321	N10	W24	10	400	1.5										
82	04	23	18321	N10	W37	9	400	1.5										
82	04	24	18321	N10	W50	9	300	1.5										

HALE REGION 18337 CMP DATE 21.3

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	23	18337	S03	W30	2	300	2.5	23109	S03	W31	2	(B)	3	M	40	4	CRO
82	04	24	18337	S04	W44	3	500	2.5	23109	S04	W45	3	(B)	3	H	30	5	BXO
82	04	25	18337	S04	W57	3	900	3.5	23109	S04	W58	3	(B)	3	H	50	10	CAO
82	04	26	18337	S06	W72	4	1200	3.0	23109	S04	W71	3	(B)	3	H	40	5	CSO

HALE REGION 18323 CMP DATE 21.5 RETURN OF REGION 18274 ROTATION 4

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	15	18323	S17	E80	358	300	1.5										
82	04	16	18323	S15	E63	1	300	2.0	23096	S13	E64		(AP)	2				
82	04	17	18323	S15	E50	2	400	2.0	23096	S13	E51		(AP)	2	M		1	AXX
82	04	18	18323	S15	E37	1	400	2.5										
82	04	19	18323	S14	E24	1	300	2.0										
82	04	20	18323	S14	E12	0	300	1.5										
82	04	21	18323	S14	W05	0	400	1.5										
82	04	22	18323	S14	W15	1	200	1.0		S11	W12				B	90	6	CSO
82	04	23	18323	S15	W28	0	200	1.5										
82	04	24	18323	S15	W42	1	200	2.0										
82	04	25	18323	S15	W56	2	200	1.0		S13	W49				L	10	5	BXO
82	04	26	18323	S15	W71	3	100	1.0										

HALE REGION 18322 CMP DATE 21.6 RETURN OF LEADING POLARITY OF 18276 ROTATION 4

				CALCIUM PLAGE DATA					SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	15	18322	S05	E80	358	300	1.0										
82	04	16	18322	S05	E65	359	300	1.0										
82	04	17	18322	S05	E53	359	300	1.0										
82	04	18	18322	S05	E40	358	300	1.5										
82	04	19	18322	S06	E26	359	300	1.0										
82	04	20	18322	S05	E12	0	300	1.5										
82	04	21	18322	S05	W04	359	300	1.5										
82	04	22	18322	S05	W13	359	200	1.0										
82	04	23	18322	S06	W25	357	200	1.5										
82	04	24	18322	S06	W38	357	200	1.5										

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HALE REGION 18338 CMP DATE 22.5

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA								SUNSPOT DATA							
82	04	23	18338	N01	W15	347	400	2.5	23110	N01	W17	348	(B)	3	B	20	8	DSO
82	04	24	18338	N01	W30	349	500	3.0	23110	N01	W32	350	(B)	3	H	30	6	BXO
82	04	25	18338	N01	W43	349	800	3.0	23110	N01	W48	353	(AP)	3	H	10	1	AXX
82	04	26	18338	N01	W57	349	800	2.5	23110	N01	W59	351	(B)	3	H	20	7	BXO
82	04	27	18338	N01	W74	350	600	3.0		N03	W70				R	60	3	DAO

HALE REGION 18328 CMP DATE 22.8

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA								SUNSPOT DATA							
82	04	19	18328	N20	E44	341	100	2.5										
82	04	20	18328	N21	E30	342	100	2.0	23106	N23	E29	342	(B)	2	H	10	1	AXX
82	04	21	18328	N21	E13	342	100	1.0										
82	04	22	18328	N21	E03	343	100	2.0										
82	04	23	18328	N21	W11	343	100	1.0										

HALE REGION 18325 CMP DATE 22.9 RETURN OF REGION 18277 ROTATION 4

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA								SUNSPOT DATA							
82	04	16	18325	S10	E80	344	500	1.5										
82	04	17	18325	S13	E68	344	400	1.5		S12	E77				H	150	1	HHX
82	04	18	18325	S14	E57	341	600	2.5		S14	E63				B	70	1	FSX
82	04	19	18325	S15	E43	342	900	2.0		S11	E53				H	180	6	CSO
82	04	20	18325	S15	E30	342	900	2.5		S12	E39				H	180	1	HAX
82	04	21	18325	S15	E14	341	800	2.0		S12	E23				B	110	3	HSX
82	04	22	18325	S15	E04	342	600	2.0		S13	E10				P	130	3	HSX
82	04	23	18325	S15	W10	342	600	2.0		S13	W02				P	120	2	HAX
82	04	24	18325	S15	W24	343	600	2.5		S11	W14				B	100	2	HSX
82	04	25	18325	S15	W37	343	600	2.0		S10	W30				P	170	3	HSX
82	04	26	18325	S15	W53	345	500	2.0		S11	W43				B	90	1	HSX
82	04	27	18325	S15	W70	346	400	1.5										

HALE REGION 18333 CMP DATE 23.5

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA								SUNSPOT DATA							
82	04	21	18333	N05	E20	335	100	1.0		N05	E19				M	110	2	BXO
82	04	22	18333	N05	E11	335	300	2.0	23107	N06	E10	335	(B)	2	B	10	4	CRO
82	04	23	18333	N05	W02	334	400	1.5	23107	N05	W03	334	(B)	3	B	10	8	CRO
82	04	24	18333	N05	W16	335	300	1.5		N07	W18				H	10	2	BXO
82	04	25	18333	N05	W30	336	300	1.0		N02	W36				L	40	6	CRO
82	04	26	18333	N04	W43	335	200	1.0										
82	04	27	18333	N05	W59	335	100	1.0		N04	W65				M	50	4	BXO

HALE REGION 18326 CMP DATE 23.9 RETURN OF REGION 18279 ROTATION 3

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA								SUNSPOT DATA							
82	04	17	18326	S13	E80	332	800	3.0	23097	S12	E79	332	(AP)	4	H	150	1	HHX
82	04	18	18326	S13	E70	328	1800	3.0	23097	S12	E66	332	(BP)	4	H	180	4	CKO
82	04	18	18326	S13	E70	328	1800	3.0	23098	S16	E71	327	(AP)	2	H		1	AXX
82	04	19	18326	S13	E57	328	1700	3.0	23098	S16	E57	328	(AP)	3	H		1	AXX
82	04	19	18326	S13	E57	328	1700	3.0	23097	S12	E52	333	(BP)	5	H	180	6	CSO
82	04	20	18326	S12	E43	329	1700	3.0	23097	S12	E39	332	(AP)	5	H	180	1	HAX
82	04	21	18326	S12	E25	330	1700	3.0	23097	S12	E27	331	(AP)	4	H	150	2	HHX
82	04	22	18326	S12	E16	330	1500	3.0	23097	S13	E13	332	(AP)	4	P	130	3	HSX
82	04	23	18326	S13	E04	328	1500	3.0	23097	S13	W02	333	(AP)	4	P	120	2	HAX
82	04	24	18326	S13	W10	329	1500	3.0	23097	S13	W14	332	(AP)	4	H	150	2	HKX

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HALE REGION 18326 (CONT) CMP DATE 23.9 RETURN OF REGION 18279 ROTATION 3

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	25	18326	S13	W23	329	1500	2.5	23097	S13	W26	331	(B)	4	H	100	5	CSO
82	04	26	18326	S13	W37	329	800	2.5	23097	S13	W40	332	(B)	4	H	140	4	CSO
82	04	27	18326	S13	W53	329	1000	2.5	23097	S13	W53	332	(AP)	4	H	160	1	HSX
82	04	28	18326	S13	W66	332	1000	2.0	23097	S13	W68	334	(AP)	4	H	140	1	HSX
82	04	29	18326						23097	S12	W82	335	(AP)	3	L	100	1	HSX

HALE REGION 18327 CMP DATE 24.1 RETURN OF LEADING POLARITY OF 18280 ROTATION 2

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	18	18327	N08	E78	320	1300	2.0		N05	E85				M	440	1	HSX
82	04	19	18327	N09	E64	321	1200	2.5	23101	N08	E60	325	(AP)	3				
82	04	20	18327	N10	E49	323	1000	2.0										
82	04	21	18327	N10	E30	325	800	2.5										
82	04	22	18327	N09	E21	325	600	2.5										
82	04	23	18327	N09	E07	325	500	2.0										
82	04	24	18327	N09	W07	326	500	2.0										
82	04	25	18327	N10	W20	326	600	2.0										
82	04	26	18327	N10	W34	326	400	2.0		N09	W33				H	10	2	AXX
82	04	27	18327	N09	W50	326	400	2.5		N08	W47				R	10	1	AXX
82	04	28	18327	N10	W62	328	400	2.5		N11	W60				B	110	6	DSO
82	04	30	18327	N10	W75	316	300	2.0		N08	W77				B	70	2	HSX

HALE REGION 18329 CMP DATE 24.9 NEW, IN LOCATION OF REGION 18329

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	19	18329	N17	E75	310	800	3.5	23102	N19	E70	315	(AF)	3	R	10	1	AXX
82	04	20	18329	N17	E58	314	1400	4.0	23102	N19	E56	315	(B)	4	H	130	14	CAO
82	04	21	18329	N17	E41	314	2800	3.5	23102	N19	E40	318	(B)	3	H	130	13	DAO
82	04	22	18329	N17	E30	316	2800	3.5	23102	N19	E28	317	(B)	4	B	90	19	DRI
82	04	23	18329	N17	E16	316	3100	3.5	23102	N18	E15	316	(B)	3	B	330	47	DKI
82	04	24	18329	N17	E04	315	3000	3.5	23102	N18	E03	314	(B)	4	H	530	51	EKI
82	04	25	18329	N17	W10	316	3000	3.5	23102	N18	W05	310	(B)	4	H	470	40	EKI
82	04	26	18329	N17	W23	315	3200	3.0	23102	N18	W23	315	(B)	3	H	430	33	EKI
82	04	27	18329	N17	W40	316	3400	3.0	23102	N18	W36	315	(B)	4	H	250	31	CAI
82	04	28	18329	N21	W53	319	3500	3.0	23102	N19	W50	316	(B)	4	H	460	20	EAO
82	04	29	18329						23102	N18	W68	321	(AP)	4	B	80	3	CAO
82	04	30	18329	N24	W70	311	1000	2.5	23102	N18	W85	324	(AP)	3	B	110	10	CSO

HALE REGION 18332 CMP DATE 25.2

CALCIUM PLAGE DATA / SUNSPOT DATA

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	19	18332						23104	N09	E77	308	(B)	2	H	70	3	CSO
82	04	20	18332	N09	E64	308	1200	3.5	23104	N09	E60	311	(B)	3	H	310	5	CHO
82	04	21	18332	N09	E47	308	1400	3.5	23104	N10	E50	308	(AF)	3	H	280	10	DHO
82	04	22	18332	N09	E36	310	1300	3.5	23104	N10	E35	310	(B)	3	B	40	1	HSX
82	04	23	18332	N08	E23	309	1400	3.5	23104	N10	E21	310	(B)	4	B	130	38	DAI
82	04	24	18332	N08	E08	311	1300	3.0	23104	N10	E06	312	(B)	4	H	330	32	EAI
82	04	25	18332	N08	W05	311	1300	3.0	23104	N10	W06		(B)	4	H	260	21	ESO
82	04	26	18332	N08	W20	312	1200	3.0	23104	N10	W19	311	(B)	4	H	490	13	EKI
82	04	27	18332	N08	W37	313	1200	3.0	23104	N10	W32	311	(B)	3	H	260	1	HKX
82	04	28	18332	N10	W50	316	1300	2.5	23104	N10	W47	313	(B)	4	H	150	12	EAO
82	04	29	18332						23104	N11	E60	193	(BY)	4				
82	04	30	18332	N10	W76	317	700	2.5	23104	N12	W81	320	(AP)	3	B	110	10	CSO

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HALE REGION 18336 CMP DATE 25.2 RETURN OF TRAILING POLARITY OF 18279 ROTATION 3

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	04	22	18336	S17	E35	311	500	1.5										
82	04	23	18336	S17	E23	309	300	2.0										
82	04	24	18336	S17	E09	310	200	1.5										
82	04	25	18336	S17	W05	311	200	1.5										
82	04	26	18336	S17	W20	312	300	1.0										
82	04	27	18336	S17	W36	312	100	1.0										
82	04	28	18336	S16	W48	314	100	1.0										

HALE REGION 18331 CMP DATE 25.4

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	04	19	18331	N05	E78	307	2400	3.0	23103	N05	E75	310	(B)	4	H	70	3	CSO
82	04	20	18331	N05	E64	308	1400	3.0	23103	N05	E61	310	(B)	4	H	190	7	DSO
82	04	21	18331	N05	E45	310	1100	3.0	23103	N05	E47	311	(B)	3	H	90	8	DSO
82	04	22	18331	N04	E35	311	800	2.5	23103	N05	E32	313	(AP)	4	B	40	1	HSX
82	04	23	18331	N04	E22	310	700	3.0	23103	N05	E18	313	(AP)	4	B	70	6	CSO
82	04	24	18331	N04	E10	309	600	3.0	23103	N04	E05	313	(AP)	4	H	120	1	HSX
82	04	25	18331	N04	W03	309	700	2.5	23103	N04	W07	312	(AP)	5	H	80	1	HSX
82	04	26	18331	N04	W17	309	500	2.0	23103	N04	W20	312	(AP)	5	H	80	1	HSX
82	04	27	18331	N04	W33	309	400	2.0	23103	N04	W33	312	(AP)	4	H	110	1	HSX
82	04	28	18331	N04	W46	312	300	2.0	23103	N05	W48	314	(AP)	4	H	110	1	HSX
82	04	29	18331						23103	N05	W61	314	(AP)	4	B	40	1	HSX
82	04	30	18331	N04	W72	313	300	2.0	23103	N05	W76	315	(AP)	4	B	70	2	HSX

HALE REGION 18350 CMP DATE 25.7

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	04	29	18350						23113	S12	W51	304	(B)	3				
82	04	30	18350	S14	W64	305	600	2.5	23113	S12	W61	300	(B)	3	B	30	2	CRO
82	05	1	18350	S14	W78	304	300	1.0	23113	S13	W79	305	B	2				

HALE REGION 18344 CMP DATE 26.0

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	04	24	18344	N25	E19	300	300	2.0	23111	N23	E17	301	(B)	3	H	10	2	AXX
82	04	25	18344	N25	E05	301	300	3.0	23111	N23	E07	298	(BP)	4	H	20	5	BXO
82	04	26	18344	N24	W09	301	600	2.5	23111	N23	W09	301	(B)	3	H	10	1	AXX
82	04	27	18344	N24	W25	301	400	2.5										
82	04	28	18344	N25	W38	304	200	2.0		N23	W36				B	90	6	DSO
82	04	30	18344	N25	W64	305	200	1.5										

HALE REGION 18330 CMP DATE 26.2 RETURN OF PORTIONS OF 18280 AND 18282 ROTATIONS 2 AND 3

YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
			CALCIUM PLAGE DATA						SUNSPOT DATA									
82	04	19	18330	N10	E78	307	1800	3.0	23105	N13	E78	307	(AF)	4	H	250	1	ĦSX
82	04	20	18330	N12	E68	304	1300	2.0	23105	N13	E65	306	(AP)	4	H	310	5	CHO
82	04	21	18330	N12	E57	298	1200	2.0	23105	N13	E51	307	(AP)	3	H	280	10	DHO
82	04	22	18330	N13	E47	299	1000	2.5	23105	N13	E38	307	(AP)	4	B	190	15	DSI
82	04	23	18330	N12	E35	297	1000	2.0	23105	N13	E26	305	(BP)	5	B	200	8	CHO
82	04	24	18330	N12	E22	297	1000	2.0	23105	N13	E10	308	(AP)	5	H	300	7	CKO
82	04	25	18330	N10	E08	298	900	2.5	23105	N13	W01	306	(AP)	5	H	260	21	ESO
82	04	26	18330	N10	W08	300	900	2.5	23105	N13	W17	309	(AP)	5	H	490	13	EKI
82	04	27	18330	N10	W25	301	700	2.5	23105	N13	W30	309	(AP)	5	H	260	1	HKX
82	04	28	18330	N11	W38	304	600	2.5	23105	N13	W42	308	(AP)	5	H	220	10	DAO
82	04	29	18330						23105	N13	W55	308	(AP)	5	B	110	6	DSO

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HALE REGION 18330 (CONT) CMP DATE 26.2 RETURN OF PORTIONS OF 18280 AND 18282 ROTATIONS 2 AND 3

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	30	18330	N11	W65	306	800	2.5	23105	N14	W69	308	(AP)	4	B	180	1	HHX
82	05	1	18330						23105	N14	W85	311	(AP)	3				

HALE REGION 18343 CMP DATE 26.8

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	20	18343	N25	E85	287	300	1.5										
82	04	21	18343	N24	E67	288	500	2.5										
82	04	22	18343	N24	E58	288	1100	3.0	23108	N22	E52	293	(AF)	3	B	20	4	BXO
82	04	23	18343	N24	E44	288	1500	3.5	23108	N22	E38	293	(BP)	3	B	70	17	DHO
82	04	24	18343	N24	E29	290	1500	3.0	23108	N22	E24	294	(B)	4	H	280	21	DAI
82	04	25	18343	N23	E16	290	2200	3.0	23108	N22	E14	291	(B)	4	H	20	5	BXO
82	04	26	18343	N21	E02	290	2800	3.0	23108	N22	E01	291	(B)	5	H	200	12	DSO
82	04	27	18343	N22	W15	291	2700	3.0	23108	N22	W12	291	(B)	4	H	190	15	ESO
82	04	28	18343	N23	W25	291	3000	3.5	23108	N22	W25	291	(B)	4	H	160	14	ESO
82	04	29	18343						23108	N22	W38	291	(B)	4	B	90	6	DSO
82	04	30	18343	N23	W52	293	2600	3.0	23108	N22	W52	291	(B)	4	B	60	7	CSO
82	05	1	18343	N24	W66	292	2000	2.0	23108	N22	W70	296	(AP)	4				
82	05	2	18343	N24	W80	293	1100	1.5	23108	N22	W80	293	(AP)	2				

HALE REGION 18334 CMP DATE 27.6 RETURN OF REGION 18287 ROTATION 4

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	21	18334	S08	E75	280	100	1.0										
82	04	22	18334	S08	E65	281	100	1.0										
82	04	23	18334	S08	E52	280	100	1.5										
82	04	24	18334	S08	E39	280	100	1.0										
82	04	25	18334	S08	E25	281	200	1.0										
82	04	26	18334	S08	E10	282	300	1.5										
82	04	27	18334	S08	W03	279	200	2.0										
82	04	28	18334	S08	W14	280	100	1.5										
82	04	30	18334	S08	W40	281	100	1.0										
82	05	1	18334	S08	W56	282	100	1.0										

HALE REGION 18335 CMP DATE 28.1 RETURN OF LEADING POLARITY OF 18283 ROTATION 3

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	21	18335	S23	E76	279	300	1.5										
82	04	22	18335	S24	E67	279	300	1.0										
82	04	23	18335	S25	E55	277	400	1.0										
82	04	24	18335	S25	E42	277	300	1.5										
82	04	25	18335	S25	E33	273	300	1.0										
82	04	26	18335	S26	E16	276	400	1.0										
82	04	27	18335	S25	E03	273	200	1.5										
82	04	28	18335	S25	W05	271	200	1.0										

HALE REGION 18339 CMP DATE 29.1 RETURN OF REGION 18290 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	23	18339	N12	E70	262	200	1.0										
82	04	24	18339	N12	E59	260	100	1.0										

REGIONS OF SOLAR ACTIVITY

APRIL 1982

HALE REGION 18349 CMP DATE 29.4

CALCIUM PLAGE DATA										SUNSPOT DATA										
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	28	18349	S18	E10	256	100	1.0										
82	04	30	18349	S17	W17	258	200	2.5		S13	W19				B	20	5	BXO
82	05	1	18349	S16	W33	259	200	1.0										

HALE REGION 18345 CMP DATE 29.5

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	26	18345	N14	E39	253	300	2.5		N15	E40				H	10	3	BXO
82	04	27	18345	N15	E23	253	300	2.0										
82	04	28	18345	N16	E13	253	200	1.5										
82	04	29	18345						23114	N17	E01	252	(BP)	3				
82	04	30	18345	N16	W14	255	300	1.0	23114	N16	W11	250	(AP)	2	B		6	AXX
82	05	1	18345	N16	W30	256	500	1.5	23114	N15	W24	250	(AF)	2				
82	05	2	18345	N16	W43	256	500	2.5	23114	N15	W37	250	(AF)	3				
82	05	3	18345						23114	N16	W54	254	(B)	2	H		1	AXX

HALE REGION 18340 CMP DATE 29.9 RETURN OF REGION 18290 ROTATION 2

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	24	18340	N15	E70	249	100	1.0										
82	04	25	18340	N15	E57	249	100	1.0										

HALE REGION 18341 CMP DATE 30.0

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	04	24	18341	S24	E70	249	300	1.5										
82	04	25	18341	S25	E57	249	400	1.5										
82	04	26	18341	S24	E41	251	400	1.0										
82	04	27	18341	S25	E27	249	300	1.5										
82	04	28	18341	S25	E19	247	100	1.0										
82	04	30	18341	S25	W07	248	100	1.0										
82	05	2	18341	S27	W34	247	100	1.0										

HALE REGION 18357 CMP DATE 30.9

CALCIUM PLAGE DATA									SUNSPOT DATA									
YR	MO	DA	HL NO.	LAT	CMD	L	AREA	INT	MW NO.	LAT	CMD	L	MAG.	H	STA	AREA	CNT	CLASS
82	05	2	18357	S02	W23	236	100	1.0	23117	N01	W22	235	(AF)	2				

NOTE: No solar magnetograms were made at Kitt Peak National Observatory on April 9 and 13, 1982.
On these dates Calcium spectroheliograms from Mt. Wilson Observatory were used: April 15 - 20, 1982.
No Mt. Wilson sunspot data were available for April 1, 5, 8, 11, 1982.

CONTIGUOUS PLAGES FOR APRIL 1982: 18278/18280/18286
18293/18300
18292/18306
18330/18331/18332

DAILY CALCIUM PLAGE INDEX

APRIL 1982

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
82	4	1	36.3	82	4	11	40.9	82	4	21	28.7
82	4	2	32.9	82	4	12	42.1	82	4	22	28.5
82	4	3	26.9	82	4	13	*	82	4	23	32.8
82	4	4	24.7	82	4	14	41.5	82	4	24	32.6
82	4	5	20.6	82	4	15	37.4	82	4	25	34.9
82	4	6	22.9	82	4	16	33.5	82	4	26	32.5
82	4	7	29.7	82	4	17	22.8	82	4	27	28.4
82	4	8	33.3	82	4	18	17.8	82	4	28	24.9
82	4	9	*	82	4	19	18.2	82	4	29	*
82	4	10	38.1	82	4	20	23.0	82	4	30	17.0

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1982

DAY	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE							KNOWN FLARE	HALE REGION
	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD		
01	0219	0259	0223	1	5	1			2	1	5		0219E	18280
01	0557	0743	0605	2	5	1			2	1	7		0550	18280
01	0842	0900U	0848	1	3						2		0842	No data
01	1107	1200	1121	1+	5	3		1	1	1	4		1105	No data
01	1135	1150D	1150	1-	3				1		4		NF	
01	1305	1320	1311	1-	3				1	1	3		NF	
01	1416	1435	1425	1-	3				1	1			NF	
01	1609	1635	1625	1	5	5		3	1	1	19		1609	18280
01	1928	2030	1940	2+	5	3			2		16		1927	18280
02	0051	0139	0101	1-	3				1	1			0053	18280
02	0901	1034	0914	3+	5	4		2	1	2	3		0900	18280
02	1542	1522D	1547	1	5	2		3	1	1	10		1537	No data
02	1555	1650	1603	1-	5			3	1	1	10		1553	No data
02	1703	1725	1705	1-	5				1		15		1656	No data
02	1823	1840	1824	1-	3						6		1832	No data
02	1932	1945	1936	1-	3						7		1934	18280
03	0129	0242D	0144	1	3	1			2	1	2		0135	18279
03	0242E	0430	0252	1-	3				1	1			0242	18280
03	0610	0722	0620	1-	3				2	1	1		0612	18280
03	0637	0700	0640	1-	3				1		2		0636	18293
03	0744	0927	0805	1	5	1			1	1	4		0736	18280
03	0756	0906D	0803	1	5	2		2		2	3		0749E	18293
03	1216	1300	1230	1-	3				1		4		NF	
03	1225	1240	1232	1-	3				1	1			1224	No data
03	1412	1420	1415	1-	3				1	1			1408	No data
03	1447	1530	1500	2	5	3		3	2	1	12		1443	No data
03	1836	1850	1842	1-	5	1			1		10		1832	No data
03	1852	1915	1900	1-	5	1			2		14		1849	No data
03	2242	2303	2246	1-	3				1		3		2240	No data
04	0136	0210	0144	1-	3				1	1			0140	18279
04	0217	0310	0225	1-	3				1	1			NF	
04	0344	0600	0405	1-	3				1		1		NF	
04	0618	0720	0627	1-	5				1	2	3		0618E	18280
04	0758	0951	0819	1	5	1			1	1	4		0800	18283
04	0842	0910	0850	1-	3					1	1		0839E	18283
04	0857	1012	0915	1-	3			1		1			NF	
04	1017	1046	1019	1-	3						2		1017	No data
04	1355	1435	1404	1-	5	2		2	1	1	2		1354	18300
04	1600	1716	1613	1-	5	1		1	1	1	9		1556	No data
04	1815	1830	1818	1-	3						3		*	
04	2128	2204	2131	1-	3				1		4		2129	No data
05	0303	0414	0316	1-	3				1	1			*	
05	0758	0847D	0812	1-	3				1	1	1		0758E	18297
05	0847E	1015	0909	1	3	1		1	1	1	1		NF	
05	1609	1820	1630	1-	3				1		9		NF	
06	0226	0257	0238	1-	1				1				0224	18298
07	0203	0354	0231	1-	3				1	1	1		*	
07	1221	1315	1224	1-	3				1	1	1		1219	No data
07	1655	1745	1705	1-	3				1		2		1653	18298
07	2232	2238	2233	1-	1	1							NF	
08	1353	1410	1355	1-	1						1		1354	18310
08	1754	1815	1800	1-	3						2		1753	18298
09	0147	0319	0200	2	5	2			2		5		0145	18298
09	0425	0530	0432	1-	3				1		1		0414	18310
09	1144	1230	1152	1-	3	1		2		1	2		1143	No data
09	1355	1510	1410	1-	5	1			1	1	8		1348	No data
09	2216	2248	2223	1-	3				1		3		2218	No data
09	2351	0112	0000	1-	3				1		4		2350	No data
10	0238	0306	0245	1-	3	1					3		0238	18308
10	0655	0720	0659	1-	1						1		0655	18308
10	1218	1245	1222	1-	5			1	1	1	2		1217	No data
10	1702	1740	1710	1-	5	1			1		5		1701	18310
10	2334	0113	2355	1-	3				1		4		2335	18307

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1982

DAY	UNIVERSAL TIME				WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE							KNOWN FLARE	HALE REGION
	START	END	MAX	IMP		SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD		
11	0336	0427	0351	1-	3	1			1		1		0335	18308
11	1244	1251	1246	1	3				1		1		1246	No data
11	1300	1330	1304	1-	3			1	1		7		1305	18306
11	1347	1430	1352	1	5	2		3	1	1	15		1344	18298
11	1638	1700	1644	1-	5	2		2	1	1	12		1636	18292
11	1847	2020	1855	1-	5	1			2		18		1842	18292
11	2331	0110	2343	1+	5	4			2		10		2330E	18292
12	0319	0418	0329	1-	3	1			1				0317	18298
12	1125	1230	1150	2	5	3		3	1	1	2		*	
12	1248	1320	1258	1+	5	2		3		1	6		1254	18298
12	1611	1625	1614	1-	5	3		1		1	9		1611	18310
12	1830	1845	1833	1+	3						3		1829	18314
12	1900	1920	1908	1-	3						7		1850	18298
12	2315	2324	2317	1-	3				1		1		2314	18310
13	1210	1315	1224	1-	3				1		1		1209	No data
13	1632	1720	1640	1-	3				1		6		1631	No data
13	1935	2013	1949	1-	3				1		2		1933	No data
14	0103	0142	0112	1-	5	2			1		3		0105E	18308
14	0153	0233	0203	2	5				2		4		0152	18301
14	0244	0418	0305	1-	3				1		4		0238	18310
14	0602	0650	0607	3+	5	4		3	2	1	6		0600	18306
14	1156	1312	1204	1-	3				1	1	3		1155E	18306
15	0433	0538	0456	1-	1						1		0435	18314
16	0207	0323	0223	1-	3	1			1		1		NF	
16	1018	1130	1036	1-	3				1		1		1019	No data
16	2125	2251	2130	2	5	2			2		15		2122	18314
17	0104	0142	0115	1	3	1			2		2		0102	18320
17	0633	0712	0639	1-	3				1		3		0630	18320
17	0757	0854	0802	1-	5	2		1	1	1	2		NF	
18	1320	1458	1352U	1	1	1		1					1318	18320
18	1610	1710	1626	1-	1				1		1		1608	18320
18	2251	2346	2306	1-	5				1		5		2239	18320
19	0416	0554	0430	2+	3	1			1				NF	
19	1019	1146	1033	1+	5	4		3	2		3		1020	18320
19	1800	1808D	1808	1+	5	3			2		13		1755	18320
22	1244	1421	1330	1-	5	3		3	1	1	4		NF	
23	0132	0235	0148	1-	5	1			2		2		0138	18333
23	0411	0558	0453	1-	3				1	1			0415E	18329
23	1631	1658	1643	1	1			1					1635	18329
23	2313	2337	2317	1-	1				1				2311	18330
23	2357	0032	0007	1-	1				1				2357	18329
24	0217	0250	0224	1-	3				1	1			0219	18329
24	0623	0710	0637	1-	5	1		1	1	2	2		0625	18329
24	0635	0645	0638	1-	3	1				2	1		0635	18329
24	1137	1200	1142	1-	5	1			1	1	2		1137E	18319
24	1251	1255D	1255	1-	5			1	1		4		1252	18332
24	1345	1500	1357	1-	1				1		1		*	
25	0125	0200	0132	1-	3				2	1			0125	18331
26	0108	0146	0118	1-	3				1	1			0108	18329
26	2359	0118	0012	1-	3				1	1			*	
27	0751	0820	0756	1	5	1		2	1	2			0750	18330
28	0140	0200	0146	1-	3				2	1			0139	18347
28	1823	1840	1827	1+	3						2		1816	18347
28	2106	2120	2117	1+	5	1					11		2105	18329
29	0424	0456	0433	1-	1				1				0424	No data
29	1115	1154	1123	1-	5	2		2	2	1	3		*	
29	1917	1950	1921	1+	3						7		1915	No data
30	0756	0848	0804	1-	5	2		2	2	1	2		0754	18347
30	2234	2241	2235	2-	1	1							NF	

SUDDEN IONOSPHERIC DISTURBANCES

APRIL 1982

OBSERVATORIES REPORTING FOR APRIL 1982:

Darmstadt, GFR (DA)	SWF	Lintong, China (LT)	SPA
Durham, North Carolina, USA (A54)	SES	Louisville, Kentucky, USA (A26)	SES
Edenvale, South Africa (A52)	SES	Maui, Hawaii, USA (MI)	SWF
Eureka, Montana, USA (A55)	SES	Mayfield Village, Ohio, USA (A28)	SES
Farsta, Sweden (FS)	SES	Missoula, Montana, USA (A31)	SES, SWF
Frenchtown, Montana, USA (A56)	SES	Panska Ves, Czechoslovakia (PU)	SEA, SWF, SFA
Glenorchy, Tasmania, Australia (GN)	SES, SWF	Portage, Michigan; USA (A51)	SES
Hicksville, New York, USA (HV)	SES	Roswell, New Mexico, USA (RW)	SES
Hiraiso, Japan (HI)	SWF	San Antonio, Texas, USA (SA)	SES
Hobart, Tasmania, Australia (A43)	SES	Sao Paulo, Brasil (UM)	SES, SPA
Houston, Texas, USA (A50)	SES	Somerton, United Kingdom (SO)	SWF
Huancayo, Peru (HU)	SWF	St. Cloud, Minnesota, USA (SC)	SES
Inubo, Japan (IN)	SPA	Tavares, Florida, USA (A49)	SES
Juliusruh, GDR (JU)	SWF	Thornwood, New York, USA (A48)	SES
Kasugai, Japan (KA)	SPA	Trenton, New Jersey, USA (NJ)	SES
Kuhlungsborn, GDR (KU)	SPA, SEA	Tucson, Arizona, USA (A9)	SES
Lake Hiawatha, New Jersey, USA (A32)	SES	Upice, Czechoslovakia (UI)	SEA
Latrobe, Pennsylvania, USA (A19)	SES	Valley Cottage, New York, USA (A1)	SES

* No Flare Patrol
NF No Flare
Observations are not necessarily continuous for each report station

SIDs BY HALE REGION

DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
18279			1	1																											
18280	4	3	3	1																											
18283				2																											
18292											3																				
18293			2																												
18297					1																										
18298						1	1	1	1		1	3																			
18300				1																											
18301														1																	
18306											1			2																	
18307										1																					
18308										2	1			1																	
18310								1	1	1		2		1																	
18314												1			1	1															
18319																								1							
18320																	2	3	2												
18329																							3	3		1		1			
18330																							1				1				
18331																									1						
18332																								1							
18333																							1								
18347																												2		1	
NO FLARE	3		1	4	2		1									1	1		1			1								1	
NO FLARE PATROL				1	1		1					1												1		1			1		
NO DATA	2	4	6	3			1		4	1	1		3			1													2		
EVENT TOTALS	9	7	13	13	4	1	4	2	6	5	7	7	3	5	1	3	3	3	3			1	5	6	1	2	1	3	3	2	

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01			PALE				0004.8	0011.0	1				G
			LEAR				0004.8	0005.0	1				III
			LEAR				0242.5	0245.9	1				III
			LEAR				0250.3	0256.5	2				III
			PALE				0250.7	0253.3	2				G
			LEAR				0512.2	0513.1	1				III
			LEAR				0522.0	0523.8	1				III
			LEAR				0611.0	0611.2	1				III
			LEAR				0746.0	0747.1	1				III
	0534	1512	WEIS				0746.2	0747.3	2				IIIG
			WEIS				0847.7	0848.2	3				IIIB
			LEAR				0847.8	0848.0	1				III
			WEIS				0911.2	0912.3	2				IIIG
			WEIS	0920.6	0921.7	3							DCIM
			LEAR				0930.0	0930.2	1				III
			WEIS				0940.7	0940.8	1				IIIB
			WEIS				0948.3	0949.9	3				IIIG
			LEAR				0949.2	0949.4	1				III
			WEIS				1203.3	1203.5	1				IIIB
			WEIS				1248.7	1248.8	3				IIIG
			WEIS				1326.3	1326.6	1				IIIB
	1321	2400	HARV	1343	2010	1	1511	2100	1				INW
	1518	1715	WEIS										
			HARV				1535		1				IIIB
			HARV				1738	1739	2	1738	1739	1	IIIG
			HARV				1828	1832	2	1830	1832	2	IIIG
			PALE				1831.5	1831.9	1				III
			HARV				1839		1				IIIB
			HARV				1848	1849	3	1848	1849	2	IIIGG,U
			PALE				1848.3	1849.3	2				V
			HARV	1930	1940	2	1930	1939	3	1931	1937	2	IIIGG,V
			PALE				1931.4	1932.1	1				III
			HARV				1937	1945	3				II
			PALE				1938.5	1945.0	2				II
			HARV	1945	1946	1	1943	1946	3				IIIGG
			HARV				2019		1	2019		1	IIIB
			HARV				2027		1	2027		1	IIIB
			HARV				2129	2130	1				IIIG
			HARV	2158	2203	2	2158	2203	2				IIIGG
			HARV				2242	2245	2				IIIGG
02			LEAR				0329.2	0329.8	1				III
			LEAR				0359.2	0359.8	1				III
			LEAR				0635.9	0636.3	1				III
	0536	1705	WEIS				0635.9	0636.3	1				IIIB
			LEAR				0735.9	0736.2	1				III
			WEIS				0735.9	0736.2	2				IIIG
			WEIS				0739	1313	1				IN
			WEIS				0900.9	0903.4	1				IIIG
			LEAR				0901.8	0910.5	2				III
			WEIS				0904.1	0905.6	2				DCIM
			WEIS				0906.1	0910.6	3				IIIGG
			WEIS				0911.3	0920.7	3				II HARM
			LEAR				0912.6	0920.1	1				II
			WEIS				1008.5	1009.1	2				IIIG
			WEIS				1010.2	1010.3	2				DCIM
			WEIS				1035.8	1036.0	1				IIIB
			WEIS				1047.6	1047.7	1				IIIB
			WEIS				1113.6	1113.8	3				IIIB
			WEIS				1403.5	1403.7	1				IIIB
	1321	2400	HARV				1421		1				IIIG
			HARV	1515	2301	1							INW
			HARV				1528	1531	1				IW
			HARV				1537	1540	3	1537	1538	2	IIIG
			WEIS				1537.1	1543.7	3				IIIG
			SGMR				1537.1	1537.9	1				V
			HARV				1702	1704	2	1702	1704	2	IIIG
			HARV				1757		2	1757		1	IIIG
			HARV				1805		2				IIIG
			PALE				1830.5	1831.1	2				III

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	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
02			HARV	1831		1	1830	1832	3	1830	1832	2	IIIGG,V
			HARV				2022		1				IIIGW
			HARV				2116	2301	1				INW
			HARV	2257		1							IIIGW
			HARV	2324		2	2324		2				IIIG
			LEAR				2347.9	2348.0	1				III
			HARV	2348	2349	2	2348		1				IIIG
03			LEAR				0142.2	0143.8	1				III
			LEAR				0515.4	0515.9	1				III
			LEAR				0545.1	0547.0	1				III
	0524	1045	WEIS				0545.2	0546.8	1				IIIG
			WEIS				0636.4	0637.7	2				IIIG
			WEIS				0643.6	0644.4	3				IIIG
			LEAR				0643.6	0644.6	2				III
			WEIS				0646.3	0647.7	2				IIIG,RS
			WEIS				0715.6	0716.3	2				DCIM
			WEIS				0739.3	0739.4	3				IIIB
			WEIS				0754.9	0755.1	1				IIIB
			WEIS				0806.1	0807.6	3				IIIGG
			LEAR				0806.1	0807.6	1				III
			WEIS				0903.8	0906.5	3				IIIG,RS
			HARV	1440	2400	1	1449	2400	1				INW
	1321	2400	HARV				1440	1441	2				IIIG
	1048	1802	WEIS				1440.2	1442.2	3				IIIG
			WEIS				1457.6	1500.3	3				IIIGG,RS
			HARV	1458	1500	2	1457	1500	2	1500		1	IIIGG
			HARV				1800		2	1800		2	IIIG
			HARV				2011		1				IIIGW
			HARV	2028	2029	2	2028	2029	2				IIIG
			HARV				2149		1				IIIGW
			HARV				2157	2158	2				IIIG
04			LEAR				0146.9	0148.0	1				III
			LEAR				0305.0	0305.4	1				III
			LEAR				0511.9	0512.6	1				III
	0545	0633	WEIS										
			LEAR				0618.3	0619.5	1				III
			LEAR				0707.3	0707.5	1				III
			LEAR				0840.9	0843.1	1				III
			LEAR				0847.0	0847.8	1				III
			HARV	1351	1405	2	1345	1405	3				IIIGG,V
			HARV				1405	1412	2				II
			HARV				1439		2				IIIG
	1321	2400	HARV	1530		1	1345	2205	1				INW
			HARV				1554	1603	2	1555	1558		IIIGG
			SGMR				1555.2	1556.1	1				V
	1657	1715	WEIS										
			HARV	1719	1721	1	1719	1723	2				IIIGG
			HARV	1741		1							IIIB
			HARV				1906		2				IIIG
			HARV				1933	1934	1				IIIGW
05			LEAR				0153.7	0155.3	1				III
	0545	0753	WEIS				0603.2	0604.3	1				
			WEIS				0610.5	0610.8	1				IIIB
			LEAR				0847.1	0849.9	2				V
	1334	1715	WEIS										
	1321	2350	HARV	1541	2343	1	1551	2350	1				I
			HARV	1615	1620	2	1615	1620	2				IV
			HARV				1804		1				IIIB
			HARV	1809		1	1809	1811	1				IIIG
			HARV	2103		1	2103	2105	2				IIIGG
			HARV				2131	2133	2				IIIGG
			HARV				2300	2301	1				IIIG
06			LEAR				0431.9	0432.5	1				III
			LEAR				0437.4	0437.7	1				III
	0554	1720	WEIS				0600.5	0606.6	1				IIIB
			WEIS				0609.1	0609.6	2				IIIG

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	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
06			WEIS				0701.6	0703.5	2				IIIGG,RS
			LEAR				0701.8	0702.4	1				III
			WEIS				0703.4	0703.5	1				IIIG
			WEIS				0721.6	0723.2	3				IIIGG
			WEIS				0831.7	0832.4	1				IIIG
			WEIS	1120.5	1120.8	1							DCIM
			WEIS				1141.9	1142.2	2				DCIM
	1310	2400	HARV				1603	1604	1				IIIG
			HARV				1652	1740	1				INW
			HARV	1750	1751	2	1750	1751	2				IIIG
			HARV				1825		1				IIIG
			HARV				1921	1923	1				IIIG
			HARV	2206	2245	1							INW
07			LEAR				0219.9	0222.0	1				III
	0526	1146	WEIS				0641.7	0741.9	2				IIIG
			WEIS				0644.3	0644.4	1				IIIG
			WEIS				0705.9	0706.3	2				IIIG
			WEIS				0729.3	0729.1	1				IIIB
	1151	1722	WEIS				1220.1	1223.9	3				IIIGG
			SGMR				1220.8	1223.2	1				III
			WEIS				1229.0	1233.0	1				II HARM
	1309	2350	HARV	1703		1	1703		2				IIIG
			HARV				2047		1				IIIBW
			HARV				2246	2248	1				IW
08	0524	1723	WEIS										
	1310	2400	HARV										
09	0522	0759	WEIS										
	0922	1725	WEIS				1123.7	1123.9	1				IIIB
	1309	2345	HARV				1309	1540	2				I
			HARV				1540	2057	1				IN
			HARV	1735	1807	1							IN
			HARV	1742	1743	1	1742	1743	2				IIIG
			HARV				2022	2023	1	2022	2023	1	IIIG
			HARV				2057	2249	1				I
			HARV				2219	2220	2				IIIG
			HARV				2313	2345	1				IN
10			LEAR				0105.5	0105.7	1				III
			LEAR				0118.0	0122.0	1				III
			LEAR				0213.3	0222.7	1				III
			LEAR				0303.2	0303.4	1				III
	0520	1613	WEIS				0625.2	0629.5	2				DCIM
			WEIS				0938.2	0941.1	2				IIIGG
			LEAR				0939.8	0940.0	1				III
			WEIS				0942.7	0951.7	1				II HARM
			WEIS				0943.4	0943.8	2				DCIM
			WEIS				1218.2	1219.4	3				IIIGG
			WEIS				1253.7	1253.8	1				IIIB
			WEIS				1255.6	1255.7	1				IIIB
	1310	2400	HARV				1310	1510	2				I
			HARV	1310	2025	1							IN
			HARV				1510	2026	1				IN
			HARV				1518	1519	2				IIIB
			WEIS				1518.3	1518.4	1				IIIB
	1616	1725	WEIS										
			HARV				1652		2	1652		1	IIIB
			HARV	1700	1702	2	1700	1701	1				IIIGG
			HARV				1906	1908	1	1906		1	IIIG
			HARV				2009		2	2009		2	IIIG
			PALE				2009.2	2009.4	1				III
			HARV	2025	2128	2							I
			HARV				2026	2400	2				I
			HARV	2128	2400	1							IN
			HARV	2334	2336	1	2334	2336	3				IIIGG,V
			PALE				2334.2	2336.5	2				V
			LEAR				2334.5	2336.3	1				III
11			LEAR				0504.6	0505.6	1				III

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	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
11	0518	1728	WEIS				0519	1443	2				ISDC
			WEIS				0536.3	0536.4	1				IIIB
			WEIS				0746.1	0747.9	2				IIIGG
			LEAR				0746.5	0748.0	1				III
			WEIS				1039.7	1040.3	2				IIIG
	1310	2400	HARV				1333		1				IIIB
			HARV	1339	1340	1							IIIGW
			HARV	1357		1							IW
			HARV				1358	1359	2				IIIG
			WEIS				1358.4	1359.2	2				IIIG
			HARV				1412	1415	2				IIIGG
			WEIS				1412.9	1415.2	2				IIIG
			HARV				1432		2				IIIG
			HARV	1442		1	1442	1444	2				IIIGG
			HARV				1449	1552	1				I,DC
			HARV	1456	1516	2							I,DC
			HARV	1516	2314	1							INW
			HARV				1627	1628	2	1627	1628	1	IIIG
			WEIS				1627.7	1627.9	3				IIIG
			HARV				1701	1754	1				IN
			HARV				1709	1710	2	1709	1710	1	IIIG
			WEIS				1709.3	1709.9	2				IIIG
			HARV	1752	1753	1	1752	1753	2				IIIG
			HARV				1833		1				IIIG
			HARV				1903	2355	1				IN
			HARV				1951	1956	2	1954		2	IIIGG,V
			PALE				1954.1	1954.4	2				III
			HARV	2128	2129	2	2128		1				IIIG
			HARV	2202		1	2202		2				IIIB
			HARV				2207		2				IIIG,U
			HARV				2239	2242	1				IIIG
			HARV	2250	2251	1	2250	2251	2				IIIG
			PALE				2309.6	2309.9	2				III
			LEAR				2309.7	2310.1	1				III
			HARV	2310		2	2310	2314	3				IIIG
			LEAR				2353.0	2353.2	1				III
			PALE				2353.0	2353.2	2				III
			HARV	2354	2357	1	2353	2357	3				IIIG
12			LEAR				0158.1	0200.1	1				III
			PALE				0159.2	0200.2	2				G
			LEAR				0335.4	0336.4	1				III
			LEAR				0441.7	0442.0	1				III
			LEAR				0520.2	0520.6	1				III
	0515	1156	WEIS				0603.7	0603.9	1				IIIG
			LEAR				0603.8	0603.9	1				III
			WEIS				0619.4	0619.6	1				IIIG
			LEAR				0619.5	0619.7	1				III
			WEIS				0742.0	0743.7	2				IIIG
			LEAR				0742.2	0743.3	1				III
			WEIS				0926.2	0926.6	2				IIIB
			WEIS				0928.2	0929.6	1				IIIG
			SGMR				1301.7	1301.8	1				III
	1309	2400	HARV				1309	1649	1				I
			HARV	1315	1316	2	1315	1316	2				IIIGG
			SGMR				1316.1	1316.6	1				III
			HARV	1321	2300	1							INW
			HARV	1424	1425	2	1424	1425	3				IIIGG
	1448	1727	WEIS				1528.4	1531.3	2				IIIG
			HARV				1530	1531	2	1530	1531	1	IIIG
			SGMR				1530.0	1530.7	1				V
			WEIS				1540.3	1543.3	2				IIIG
			SGMR				1540.4	1540.6	1				III
			SGMR				1542.9	1543.3	1				III
			HARV				1543		2				IIIG
			HARV	1608	1615	3	1608	1614	3				IIIGG
			WEIS				1608.7	1608.9	2				DCIM,RS
			WEIS				1612.8	1613.5	2				DCIM
			HARV				1649	1913	2				I
			SGMR				1718.9	1719.1	1				III

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	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
12			PALE				1718.9	1719.1	1				III
			WEIS				1718.9	1719.3	2				IIIG
			HARV				1719		2	1719		2	IIIG
			HARV	1830	1832	2	1830	1832	2				IIIG
			HARV	1902	1930	2							IV
			HARV				1913	2400	1				IN
			HARV				2001	2002	2				IIIG
			HARV				2053		2				IIIG
			HARV				2226	2229	2	2228	2229	1	IIIG
			PALE				2228.6	2229.1	2				III
			HARV				2239		2				IIIB
13			LEAR				0626.2	0626.5	1				III
	0516	1729	WEIS				0626.2	0626.4	1				IIIG
			WEIS				0632.6	0633.7	3				IIIG
			LEAR				0632.8	0633.7	1				III
			WEIS				0733.3	0733.6	2				IIIB
			WEIS				1122.0	1122.3	2				IIIB
			WEIS				1242.4	1242.9	2				IIIG
			WEIS				1300.9	1301.1	1				IIIB
	1310	2400	HARV	1525	2353	1							IN
			HARV				1526	1649	1				I
			HARV				1540	1541	2				IIIG
			HARV				1649	2225	1				IN
			HARV				1726		2				IIIG
			HARV	1802	1807	1	1816	1807	2	1806	1807	1	IIIG
			HARV				1812		1				IIIG
			HARV				1852	1853	1				IIIG,U
			HARV				1905		1				IIIG
			HARV				1927	1931	1				IIIG
			HARV				2037	2040	1				IIIG
			HARV				2225	2400	2				I
14			LEAR				0100.0	0105.6	2				III
			PALE				0100.2	0105.8	2				G
			LEAR				0234.6	0310.3	2				IV
	1022	1732	WEIS				0604.4	0605.0	1				IIIG
	0516	1015	WEIS				0618	1238	1				IN
			WEIS				0711.3	0711.5	1				IIIB
			WEIS				0721.3	0721.5	2				U
			WEIS				0826.9	0827.7	3				IIIG
			LEAR				0826.9	0827.7	2				III
			WEIS				0901.6	0904.3	2				IIIG
			LEAR				0903.6	0903.9	1				III
			WEIS				1303.8	1304.3	2				IIIG
	1310	2400	HARV	1310	2309	1	1310	1608	1				IN
			HARV				1315	1317	2				IIIGG
			WEIS				1316.3	1317.6	2				IIIG
			SGMR				1322.6	1323.2	1				III
			WEIS				1322.7	1323.3	3				IIIG
			HARV				1323		2				IIIG
			WEIS				1347.7	1348.3	3				IIIG
			HARV				1348		2				IIIG
			WEIS				1356.2	1356.3	1				IIIB
			HARV				1430	1431	2				IIIG
			WEIS				1430.6	1431.1	1				IIIG
			WEIS				1442.8	1443.3	2				IIIG
			WEIS				1446.8	1448.3	2				IIIG
			HARV				1447	1448	2				IIIG
			HARV				1608	2400	1				I
			HARV				2142		2				IIIG
			HARV				2216		2				IIIB
			HARV				2349		2				IIIG
15			LEAR				0145.0	0145.8	1				III
			LEAR				0209.2	0209.4	1				III
			LEAR				0448.4	0449.4	1				III
	0511	1734	WEIS				1058.0	1058.2	2				IIIB
			WEIS				1214.7	1214.9	2				IIIB
			WEIS				1237.2	1237.3	2				IIIB

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	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
15	1310	2400	HARV				1317	1320	1				I
			HARV				2016	2017	2				IIIG,U
			HARV				2216		1				IIIB
16	0508	0546	WEIS				0518.2	0518.7	1				IIIG
	0553	1735	WEIS				0834.2	0834.4	1				IIIB
			WEIS				0902.8	0903.6	1				IIIB
			WEIS				0939.8	0940.0	1				IIIB
			WEIS				1022.6	1024.0	3				IIIG
			WEIS				1041.8	1042.0	1				IIIB
			WEIS				1308.3	1311.6	2				IIIGG,RS
	1310	2254	HARV	1310	1311	1	1310	1312	2				IIIGG
			HARV				1338	1829	1				IN
			WEIS				1415.7	1417.6	2				IIIGG
			HARV	1416		1	1414	1423	2				IIIGG
			WEIS				1420.6	1420.8	1				IIIB
			HARV	1613	1614	1							IIIBW
			HARV	1651		1							IIIBW
			HARV	1729		2	1729		2				IIIG
			HARV				1732	1734	2				IIIGG
			WEIS				1733.5	1734.2	1				IIIG
			HARV				1829	2124	1				I
			HARV	1831	2005	1							INW
			HARV	1851	1859	1	1850	1859	2	1852	1856	2	IIIGG,V
			PALE				1852.5	1854.1	2				G
			HARV	1904		1	1904	1905	1				IIIGW
			HARV				2124	2254	1				IN
			HARV				2127	2128	2				UNCL
			HARV				2142		2				IIIG
17	0507	1329	WEIS				0514.2	0514.3	1				IIIB
			WEIS				0938.2	0938.3	1				IIIB
			WEIS				0948.8	0948.9	1				IIIB
			WEIS				1245.6	1245.8	1				IIIB
			WEIS				1259.2	1259.3	1				IIIB
	1309	2400	HARV				1314	1934	1				IN
			HARV				1319	2218	1				INW
	1344	1737	WEIS				1517.8	1517.9	1				IIIB
			HARV				1934	2400	2				I
			HARV				2039		1	2039		1	IIIBW
			HARV	2121		1							IIIBW
			HARV	2207		1	2205	2207	1	2205		1	IIIGW
			HARV				2318		2				IIIG
			HARV				2325	2326	2				IIIG
			HARV				2327	2359	1				IIIN
18			LEAR				0037.5	0037.9	1				III
			LEAR				0051.8	0052.1	1				III
			PALE				0051.8	0245.5	2				CONT
			LEAR				0130.0	0137.0	1				III
			LEAR				0203.8	0226.0	1				G
			LEAR				0219.6	0219.8	2				III
			LEAR				0240.0	0952.0	1				CONT
			PALE				0317.6	0328.2	2				GG
			LEAR				0327.5	0328.4	2				III
			PALE				0357.8	0404.8	2				G
			LEAR				0357.8	0405.0	2				III
			LEAR				0524.9	0525.5	1				III
			LEAR				0541.2	0547.5	2				III
			LEAR				0649.8	0652.2	1				III
			SGMR				1254.8	1255.0	2				III
	1310	2400	HARV				1310	2400	1				IN
			HARV				1345	1347	2				IIIG
			HARV				1351	1400	1				IIIN
			HARV	1358	2335	1							INW
			HARV				1444	1445	1				IIIGW
			HARV				1544		1				IIIB
			HARV	1612		1							IIIG
			HARV				1618	1620	2				IIIG
	0504	1737	WEIS				1619.7	1619.9	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
18			HARV				1639	1753					I,DC
			HARV				1642		2				IIIG
			HARV				1655	1656	1				IIIG
			HARV				1751	1757	2	1756	1756	1	IIIG
			HARV				1803		1	1803		1	IIIBW
			HARV				1823	1824	1				IIIG
			HARV				1953	1956	3				IIIG
			HARV				2009	2013	1				IIIG
			HARV				2156	2157	2	2156	2157	1	IIIG
			PALE				2156.2	2157.2	2				III
			HARV				2224	2225	1				IIIGW
			HARV				2257		1				IIIG
			HARV				2312	2328	2	2313	2315	1	IIIGG
			PALE				2312.9	2327.8	2				GG
			PALE				2312.9	2317.3	2				G
			HARV	2313	2329	2	2316	2321	1				IV
			LEAR				2313.3	2316.6	1				III
19			LEAR				0419.5	0426.3	1				V
	0503	0841	WEIS				0739.7	0739.9	1				IIIB
	0845	1740	WEIS				1023.2	1024.5	2				IIIG
			WEIS				1226.2	1231.2	1				IIIG
			WEIS				1235.2	1237.7	1				IIIG
			WEIS				1244.7	1245.7	1				IIIG
	1309	2400	HARV				1318	1322	1				IIIGW
			WEIS				1321.2	1322.5	2				IIIG
			HARV				1338	2358	1				INW
			WEIS				1454.3	1454.6	1				IIIB
			HARV	1540	1549	1	1540	1549	3	1540	1549	2	IIIGG
			SGMR				1540.0	1540.5	1				V
			WEIS				1540.1	1541.7	3				IIIG
			WEIS				1544.8	1549.2	3				IIIG
			SGMR				1546.2	1546.6	1				V
			SGMR				1547.5	1547.8	1				V
			HARV				1627	1630	1				IIIGW
			HARV	1648	2202	1							INW
			HARV	1741	1742	2	1741	1742	2				IIIG
			HARV				1759	1800	1	1759	1800	1	IIIBW
			HARV	1811	1814	2	1811	1823	3	1813	1823	2	IIIGG
			HARV	1812	1825	3	1814	1825	2				IV
			PALE				1814.0	1814.7	2				G
			SGMR				1814.0	1814.4	1				V
			HARV	1927	1928	1	1926	1929	1				IIIG
			HARV				2010	2011	1				IIIGW
			HARV				2017		2	2017		1	IIIG
			HARV				2210	2211	1				IIIG
20	0501	1610	WEIS				0620	1238	3				IN,DC
			WEIS				1106.8	1107.1	2				IIIB
			WEIS				1218.1	1218.2	1				IIIB
			WEIS				1223.8	1223.9	1				IIIB
	1306	2400	HARV				1310	2400	1				IN
			WEIS				1331.2	1331.5	3				IIIG
			HARV				1345		1				IIIGW
			WEIS				1345.2	1345.7	3				IIIG
			WEIS				1441.2	1442.6	3				IIIG
			SGMR				1441.9	1442.0	1				III
			HARV	1442	1443	1	1442		2	1442		1	IIIG
			SGMR				1445.9	1446.1	1				III
			WEIS				1445.9	1447.0	3				IIIG
			HARV	1446	1447	1	1446	1447	2	1446	1447	2	IIIG
			WEIS				1545.8	1546.0	1				IIIB
			WEIS				1547.8	1548.0	1				IIIB
			HARV				1615	1618	1				IIIGW
	1615	1741	WEIS				1640.7	1641.1	1				IIIB
			HARV				1641		2	1641		1	IIIG
			HARV				1941	1942	1	1941	1942	1	IIIB
			HARV				2014	2015	1	2014	2015	1	IIIG
			HARV				2019		1				IIIBW
			HARV				2054	2055	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
20			PALE				2054.6	2055.2	2				III
			HARV	2156	2157	1	2156	2157	1				IIIGW
			HARV				2304		1				IIIBW
21			PALE				0058.7	0058.8	1				III
			LEAR				0058.8	0058.9	1				III
			LEAR				0601.3	0601.9	1				III
	0503	1742	WEIS				0726.9	0727.0	1				IIIB
			WEIS				0832.5	0832.6	1				IIIB
			WEIS				0834.7	0834.4	1				IIIB
			WEIS				0919.3	0919.5	3				IIIB
			WEIS				0924.2	0924.3	1				IIIB
			WEIS				0955.7	0955.8	1				IIIB
			WEIS				1033.9	1034.1	2				U
			WEIS				1049	1255	2				IIIN
	1306	2400	HARV	1313	1355	1	1306	2400	1				IN
			HARV				1531	2349	2	1729	2031	1	IIIN
			WEIS				1532	1631	1				IIIN
			HARV				1836	1840	2	1836	1837	1	IIIG
			HARV				1906	1907	2	1906	1907	1	IIIGG
			HARV				1912	1914	3	1912	1914	2	IIIGG
			PALE				1913.0	1913.9	2				III
			PALE				2011.9	2012.1	1				III
			HARV				2012		3	2012		2	IIIG
22			LEAR				0043.5	0043.7	1				III
			LEAR				0106.1	0106.5	1				III
			LEAR				0122.8	0129.1	1				III
			LEAR				0132.4	0317.5	1				CONT
			PALE				0157.2	0157.4	1				III
	0458	1051	WEIS				0504.2	0504.7	1				IIIG
			LEAR				0536.8	0537.3	1				III
	1057	1136	WEIS				0536.9	0537.1	1				IIIB
			WEIS				0557	1411	3				IS
	1149	1744	WEIS				0602	1551	1				IIIN
	1306	2345	HARV				1306	2345	3				IC
			HARV	1307	1323	2	1317	1327	2				IV
			HARV	1329	2345	1							INW
			WEIS				1332.6	1346.5	1				II
			HARV	1442	1445	2	1442	1445	2				IV
			HARV				1519	1520	2				IIIB
			HARV				1750		2				IIIB
			HARV				1823		1				IIIG
			HARV				1906		1				IIIB
			HARV				2145	2146	1				IIIB
			HARV				2236	2237	1				IIIG
23			LEAR				0402.1	0411.6	1				III
			LEAR				0528.4	0529.1	1				III
			WEIS				0528.4	0528.6	2				IIIB
	0457	1723	WEIS				0552	1245	2				IS
			WEIS				0851.9	0852.0	1				IIIB
			WEIS				0937.6	0937.8	1				IIIB
			WEIS				1053.2	1053.5	1				IIIB
			WEIS				1211.4	1212.8	2				IIIG
	1306	2355	HARV				1306	2355	2				I
			HARV	1313	2350	1							IN
			HARV	1527	1528	1	1527	1528	2				IIIG
			HARV				1555		1				IIIB
			WEIS				1555.2	1555.5					IIIB
	1725	1745	WEIS										
			HARV				1744	1752	2	1744	1752	2	IIIGG
			HARV				1758		3	1758		1	IIIB
			HARV				1917	1918	2	1917	1918	1	IIIB
			HARV				2134		1				IIIGW
24			LEAR				0124.2	0124.5	1				III
	0454	1400	WEIS				1122.3	1122.6	1				IIIB
			WEIS				1128.7	1128.9	2				IIIB
			WEIS				1331.3	1331.6	1				IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
24			WEIS				1332.7	1332.9	1				IIIB
	1415	1747	WEIS				1450.5	1451.0	2				IIIG
	1306	2400	HARV				1601	2305	1				IN
			HARV				1719	1720	1				IIIGW
			HARV				2017		1				IIIB
25			PALE				0158.5	0159.0	2				III
			LEAR				0158.5	0159.2	1				III
			LEAR				0255.7	0256.1	1				III
			LEAR				0350.2	0350.4	1				III
			LEAR				0629.4	0629.8	1				III
	1306	2250	HARV				1308		2				IIIB
			HARV				1441	1442	1				IIIG
	1447	1749	WEIS				1522.2	1522.3	1				IIIB
			WEIS				1523.9	1524.7	1				IIIB
			WEIS				1626.7	1626.8	1				IIIB
			WEIS				1628.7	1629.1	1				IIIG
			HARV	2228	2250	1							INW
26			PALE				0028.5	0033.2	2				G
			LEAR				0028.5	0033.1	1				III
			PALE				0139.7	0139.8	2				III
	0540	1749	WEIS				1116.5	1117.9	2				IIIG
	1306	2255	HARV	1709	2000	1							INW
			HARV				2057	2058	1	2057	2058	1	IIIB
			PALE				2057.4	2057.6	2				III
27			LEAR				0334.9	0335.2	1				III
			LEAR				0351.0	0351.2	1				III
	0450	0859	WEIS				0605.9	0606.8	1				IIIB
			LEAR				0625.5	0627.2	1				III
	0912	0953	WEIS				0625.5	0626.7	2				IIIG
	1022	1750	WEIS				1217.7	1220.9	3				IIIGG
			WEIS				1324.1	1324.3	2				IIIG
			WEIS				1326.6	1326.7	1				IIIB
			WEIS				1345.7	1346.0	1				IIIG
			WEIS				1435.0	1435.1	1				IIIB
			WEIS				1520.6	1520.8	1				IIIB
			WEIS				1649.2	1649.9	1				IIIG
	1306	2255	HARV	1827		1							I
28			PALE				0203.3	0203.5	2				III
			LEAR				0222.4	0222.8	1				III
			LEAR				0231.3	0231.9	2				III
			LEAR				0319.2	0323.9	1				III
			LEAR				0425.0	0426.2	1				III
			LEAR				0607.1	0607.4	1				III
	0448	1723	WEIS				0607.1	0607.3	3				IIIB
			WEIS				0705.7	0705.9	1				IIIB
			LEAR				0725.6	0725.7	1				III
			WEIS				0725.6	0725.9	1				IIIB
			WEIS				0810.7	0813.3	3				IIIGG
			LEAR				0811.0	0813.0	2				V
			WEIS				0824.9	0826.8	3				IIIGG
			LEAR				0825.2	0826.6	1				III
			WEIS				0854.4	0854.5	1				IIIB
			WEIS				1209.7	1210.1	3				IIIB
			WEIS				1250.6	1250.8	1				IIIG
			WEIS				1423.2	1423.4	1				IIIB
	1306	2245	HARV				1452	1454	2	1452	1453	1	IIIG
			WEIS				1452.3	1458.0	2				IIIGG,RS
			SGMR				1452.9	1453.0	1				III
			WEIS				1615.2	1615.4	1				IIIG
			WEIS				1632.9	1637.6	3				IIIGG
			HARV				1633	1645	3	1635	1644	1	IIIGG
			WEIS				1643.9	1644.2	2				IIIG
29	0616	1753	WEIS										
	1306	2245	HARV										
			LEAR				2311.1	2313.0	1				III

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

APRIL 1982

	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
		1982	MONTH 04										
30	0444	0538	WEIS										
	0544	0633	WEIS										
	0648	1339	WEIS										
	1520	1754	WEIS										
	1306	2255	HARV	1540		1							IIIG
			HARV	2050		1							I

The symbols used under the column heading SPECTRAL TYPE have the following definitions:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of burst
C = Underlying continuum (particularly with Type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III

RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity
DCIM = Fast drift

COSMIC RAY INDICES

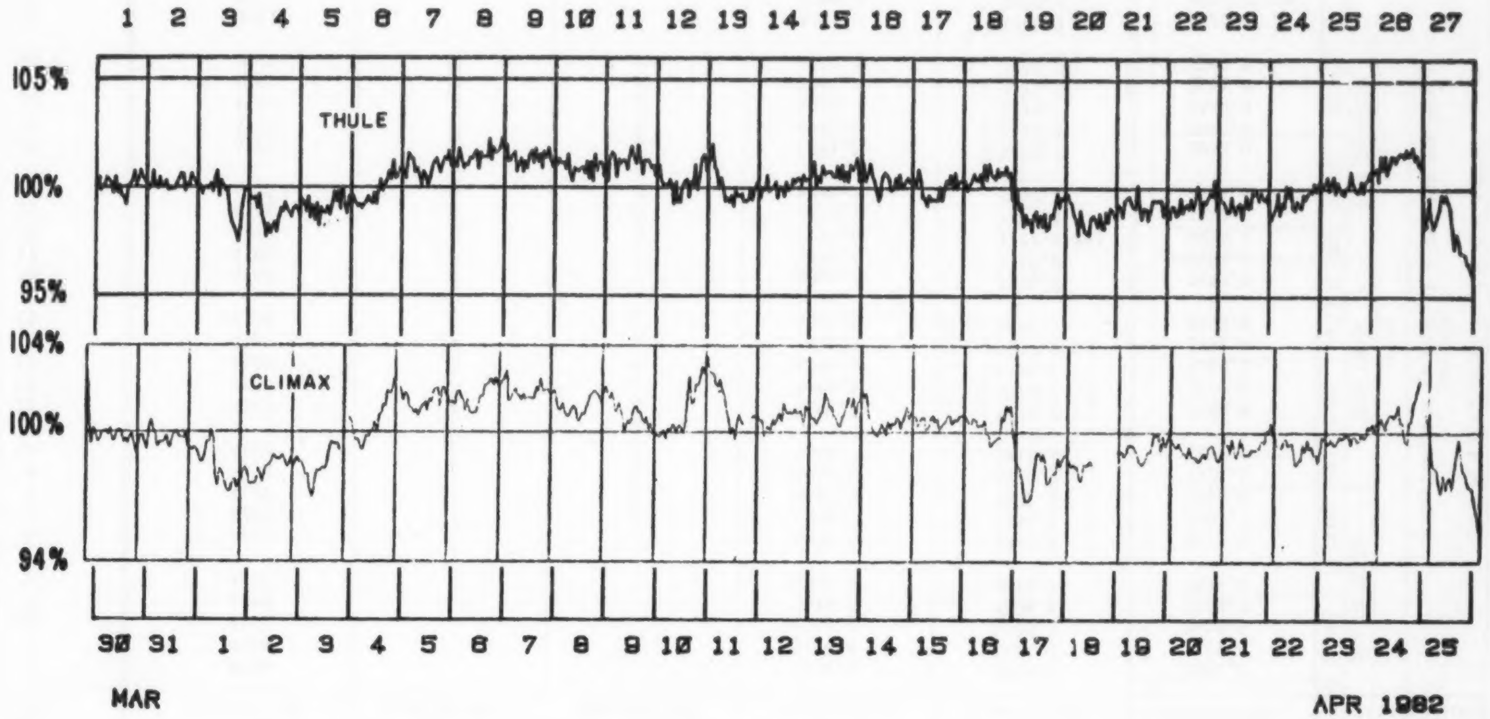
(Neutron Monitors)

APRIL 1982

Apr 1982	THULE Average (cts/h)/100	ALERT Average (cts/h)/100	DEEP RIVER Average (cts/h)/300	KIEL Average (cts/h)/100	CLIMAX Average (cts/h)/100	TOKYO Average (cts/h)/100	HUANCAYO Average (cts/h)/100)
1	4128	(Data not available at time of publication.)	(Data not available at time of publication.)	5787.6	3726.7	3541.7	(Data not available at time of publication.)
2	4098			5728.4	3721.8	3515.5	
3	4113			5761.3	3729.0	3529.5	
4	4145			5816.0	3804.4	3558.7	
5	4187			5867.8	3841.2	3575.4	
6	4211			5892.5	3846.8	3573.5	
7	4204			5886.7	3856.7	3563.7	
8	4188			5877.5	3832.9	3566.6	
9	4198			5866.9	3820.1	3578.5	
10	4162			5843.7	3818.1	3577.9	
11	4147			5865.5	3836.2	3580.9	
12	4154			5850.4	3811.7	3570.2	
13	4178			5876.9	3822.5	3568.0	
14	4163			5832.6	3807.7	3551.4	
15	4148			5816.2	3806.3	3550.4	
16	4169			5814.7	3796.2	3547.8	
17	4102			5746.6	3716.6	3534.5	
18	4092			5743.0	3727.2(26)	3539.7	
19	4116			5773.7	3758.4	3544.6	
20	4122			5790.3	3750.8	3534.6	
21	4122			5781.2	3764.7	3535.0	
22	4130			5782.8	3758.4	3542.6	
23	4157			5826.8	3779.2	3544.3	
24	4203			5851.4	3813.9	3561.4	
25	4068			5680.7	3703.5	3549.8	
26	4013			5644.3	3646.0	3520.7	
27	4077			5720.8	3699.0	3541.3	
28	4105			5744.0	3725.4	3539.0	
29	4101			5756.9	3726.2	3519.8	
30	4107			5753.6	3737.7	3534.2	
Mean	4137			5799.3	3773.0	3549.7	

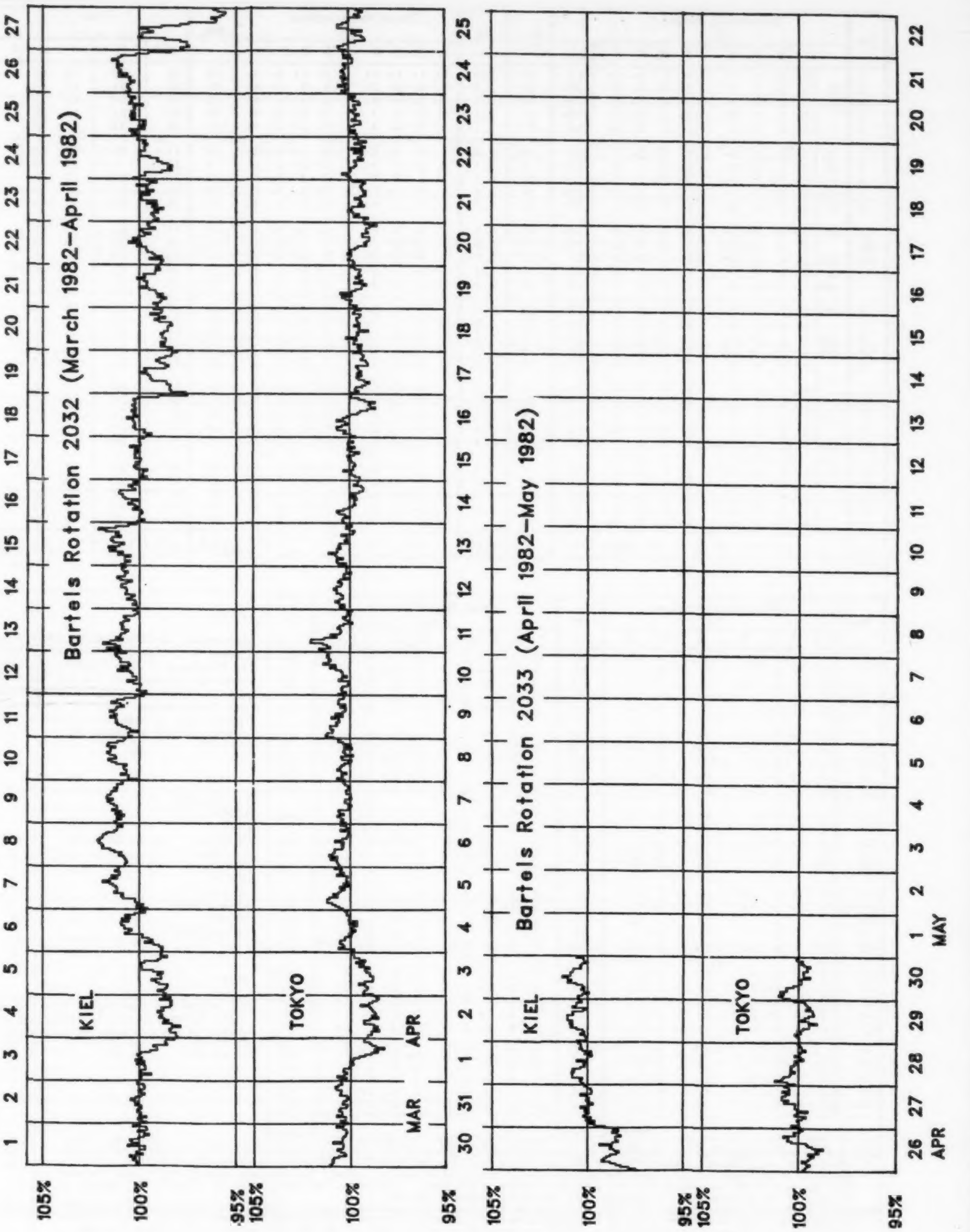
For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

COSMIC RAY INDICES
(Neutron Monitor)



BARTELS ROTATION 2032

COSMIC RAY INDICES
(Neutron Monitor)



GEOMAGNETIC ACTIVITY INDICES

APRIL 1982

Day		Kp 1	2	3	4	5	6	7	8	Sum	Ap	Cp	Km 1	2	3	4	5	6	7	8	Am	aa N	aa S	aa M		
1		2+	1+	2	2+	4	2	5-	5+	24	20	1.0	2+	1-	1+	2+	3+	2+	4-	5-	29	41	26	15	52	
2	D5	5	5+	4	3	5-	6-	5-	5	37+	42	1.5	5-	4+	4-	3+	4	5	4-	4+	61	52	55	43	64	
3	D2	4+	6	6	4+	5-	5	4+	5-	39+	48	1.6	4-	5-	5+	4-	4	5-	4	4+	65	59	54	61	52	
4		5	4	4	3+	3-	3-	3+	3+	28+	22	1.1	4	3+	3	3	3-	2+	3+	4-	36	40	27	41	27	
5		3+	4	4-	4	2	3	4-	4+	28	21	1.1	3-	3+	4-	4	2-	3-	3+	4-	34	36	33	38	32	
6		3	4-	4	3+	3	4-	3-	3	26+	18	1.0	3	3-	4-	3	3-	3+	3-	3-	29	31	31	32	30	
7	Q1	2	2-	1+	2-	1+	1+	1	1	11+	5	0.2	2	1+	1	1+	1+	1+	1	1	9	11	9	11	9	C
8		1	2+	3-	2+	3	2+	3	4-	20+	12	0.7	0+	2	3-	2+	3	2	3-	3	19	24	27	19	33	
9	Q7A	3+	2+	1+	1+	3-	2+	3-	2+	18+	10	0.6	3-	2-	1+	1+	2+	2-	3-	2	15	20	17	14	23	
10	D1	3+	3+	4-	4+	6	6+	6+	7	40+	61	1.7	3-	3-	3	4+	6-	5+	5	6-	75	74	68	33	109	
11	D4	6-	5+	5+	5+	5-	5-	5-	4-	39+	47	1.5	5	5-	5-	5-	4-	3+	4-	3	61	71	61	73	59	
12		2	3+	2+	3	5-	3-	3-	2-	22+	15	0.8	2-	3-	2	3-	4	2	3-	2-	22	18	24	18	24	
13	Q8A	3+	4	3-	2-	2-	1-	0+	3-	17	11	0.6	3	4-	2+	2-	1	0+	0+	2+	17	20	14	22	11	
14	Q2	1-	1	2	1+	2-	2	1+	2	12	6	0.2	1-	0+	2+	1+	1+	2-	1	2-	9	10	11	9	13	CK
15	Q6A	1+	1+	3-	3-	2+	3-	2	3	18	10	0.5	1+	1	2+	3-	2+	2	2	3-	16	18	21	18	21	
16	Q9A	2	2+	2	1+	1-	4	3+	3-	18+	11	0.6	2	2+	2-	1+	0+	4-	3+	3-	20	26	19	15	30	
17		3+	2+	5	4	3+	3	2+	2	25+	19	1.0	3	2+	5-	4+	4-	3-	2	2-	36	27	50	51	27	
18	Q0A	1	1	2+	1+	4-	3+	3	3	19-	12	0.7	1	1	2	1+	3	3	3	3-	19	21	19	9	31	
19	Q4A	1+	2-	1+	1+	2+	3	2	3	16	8	0.5	1+	1+	1	1+	2+	3-	2	3-	14	16	18	9	25	
20		3+	4	4+	4-	3	2+	2	4	27-	20	1.0	3	3+	4-	3+	3	2+	2	3	30	34	41	47	29	
21		4+	3-	4	4	5	4+	5	4+	34-	32	1.3	4	2+	4-	3+	4-	3+	4-	4	44	52	44	41	55	
22		5-	5+	3-	2-	2-	3-	2-	1	21+	18	1.0	4	4+	3-	2-	1+	2	2-	1	25	26	22	35	14	
23	Q5A	2-	1+	2	3	3-	3	2	2	18-	9	0.5	2-	1+	2	3	2+	2+	2-	2-	15	17	16	13	19	
24		3	2+	1+	1+	3-	2+	5+	3-	21	15	0.9	2+	1+	1+	1-	2-	2	4+	3-	19	27	19	14	32	
25	D3	4+	6	7-	6+	5+	4	3-	2	37+	52	1.6	4+	5	5+	6	5-	3+	2+	2-	71	69	56	93	33	
26	Q3A	1	1	1+	2+	2	2	2+	3-	15-	7	0.4	1	1-	1+	3-	2-	1+	2	3-	13	16	16	13	19	
27		0+	2+	3+	2-	3	5	5+	5-	26-	24	1.2	0+	2	3+	1	3-	4	4	4	33	43	30	15	58	
28		5-	4	3	3-	3+	3	3+	4	28	21	1.1	4+	3+	3-	3-	3	3-	3-	3+	32	31	37	34	34	
29		4-	4-	3+	3+	4	5-	5+	5	33	31	1.3	4-	3+	3	3	3+	4-	4+	4+	45	48	44	31	62	
30		5	4+	5-	4-	4-	5-	3+	4-	33	30	1.3	4+	4	4+	3+	4-	4	3-	3+	47	42	39	43	38	
Mean											22	0.95									32.0	34.0	31.6	32.9		

Day	Kn 1	2	3	4	5	6	7	8	An	Ks 1	2	3	4	5	6	7	8	As
1	2+	1-	1+	3-	3+	2	4	5-	31	2+	1-	1+	2	3	3-	4-	5-	26
2	4+	4+	4-	3+	4	5-	4-	4	56	5	4+	4-	3+	4	5+	4-	5-	66
3	4-	5-	6-	3+	4	5-	3+	4	64	4-	4+	5-	4-	4	5	4+	4+	65
4	4	3+	3	3	3-	3-	3+	3+	33	4+	4-	3	3	3	2+	4-	4	39
5	3-	4-	4-	4	2	3	3+	4-	37	3-	3	3+	4	1+	2+	3+	4-	32
6	2+	2+	4-	3	3-	3+	3-	3-	28	3+	3	3+	3	3-	4-	3-	3-	30
7	2-	1	1+	2-	2-	1+	1+	1+	9	2+	1+	1	1	1-	1+	1-	1-	8
8	0+	2	3-	2	3	2+	3-	3	19	0+	2	3-	2+	3	2-	3-	3+	20
9	3-	1+	1+	2-	2+	2	2+	2	15	3	2	1	1	2+	1+	3-	2	16
10	3-	3-	3	5-	6-	5	5-	6-	72	3-	3-	3-	4	6	5+	5	6-	78
11	5-	5-	5-	5	4-	3+	4-	3	62	5+	5-	5-	4+	3+	3+	4-	3	60
12	2-	3-	2	3-	4	2	3-	2	24	1+	3-	2	3-	4-	2	2+	1+	21
13	3	4-	2+	2-	1+	0+	1-	3	18	3	4-	2+	1+	1	0+	0	2-	16
14	1-	0+	2+	1+	2-	2-	2-	2	11	0+	0+	2+	1+	1-	2-	1-	1	7
15	1+	1	3-	3-	2+	2	2	3	17	1+	1	2	3-	2+	2	2	3-	15
16	2	3-	2	1+	1-	4-	3	3	22	2	2	2-	1	0	3+	4-	2	17
17	3	3-	5	5-	4-	3	3-	2-	41	3-	2+	4+	4	3+	3-	1+	1+	31
18	1	1	2	1+	3+	3	3	3-	20	1+	1	2	1	2+	3-	3+	3-	18
19	1+	1+	1+	1+	2+	3-	2+	3	16	1+	1+	1	1-	2	3-	2	2+	13
20	3	3	4	3+	3	2+	2	3+	32	3	3+	3+	3+	3-	2+	2-	3	29
21	4	2+	4-	4-	4	4-	4	4	45	4	2+	4-	3	4-	3	4-	4	42
22	4	4+	3-	2-	1+	2+	2	1+	27	4+	4+	2+	1+	1	2-	1+	0+	23
23	2-	1+	2-	3	2+	3-	2	2	17	1+	1+	2	3	2	2	1+	2-	14
24	3-	2-	1+	1+	2	2+	5-	3-	23	2	1+	1+	0+	1+	2-	4-	3-	16
25	4+	5	6-	6	5-	3+	3-	2+	76	4	5	5+	6	5-	3	2	1+	67
26	1+	1-	1+	3	2-	2-	2+	3-	14	1	1-	1	2	2-	1+	1+	3-	11
27	0P	2	3+	1+	3	4+	4	4	34	0+	2-	3+	1-	3-	4	4	4	31
28	4	3+	3-	3-	3	3-	3-	3+	32	5-	4-	3-	2+	3	3-	2+	3	32
29	3	3+	3+	3+	4-	4	4	4+	44	4	3	3	3	3	4-	4+	5-	46
30	4	4	4	3	3+	4	3	3	44	5-	4+	5-	3+	4-	4-	3-	4-	51
Mean									32.8									31.3

ERRATA:

Conversion in 1979 to a new computer with a different word size caused values of indices aa to be truncated if they exceeded 99; the machine read and printed only the two least significant digits. Correct values of the affected indices are listed below. Both half-daily values are given, too, to make clear which of the two entries should be corrected.

Date	N	S	M	
21 Feb 1979			66	102
10 Mar			54	101
25 Apr	109		27	148
26 Apr			103	15
13 Aug			53	108
20 Aug			33	100
29 Aug			59	111
18 Sep			100	63
25 Jul 1980			13	100
19 Dec	118	123	63	178
06 Feb 1981			24	116

NOTE:

aa indices are provisional from 1 January 1981 until further notice, in connection with the change of the Southern Hemisphere observatory.

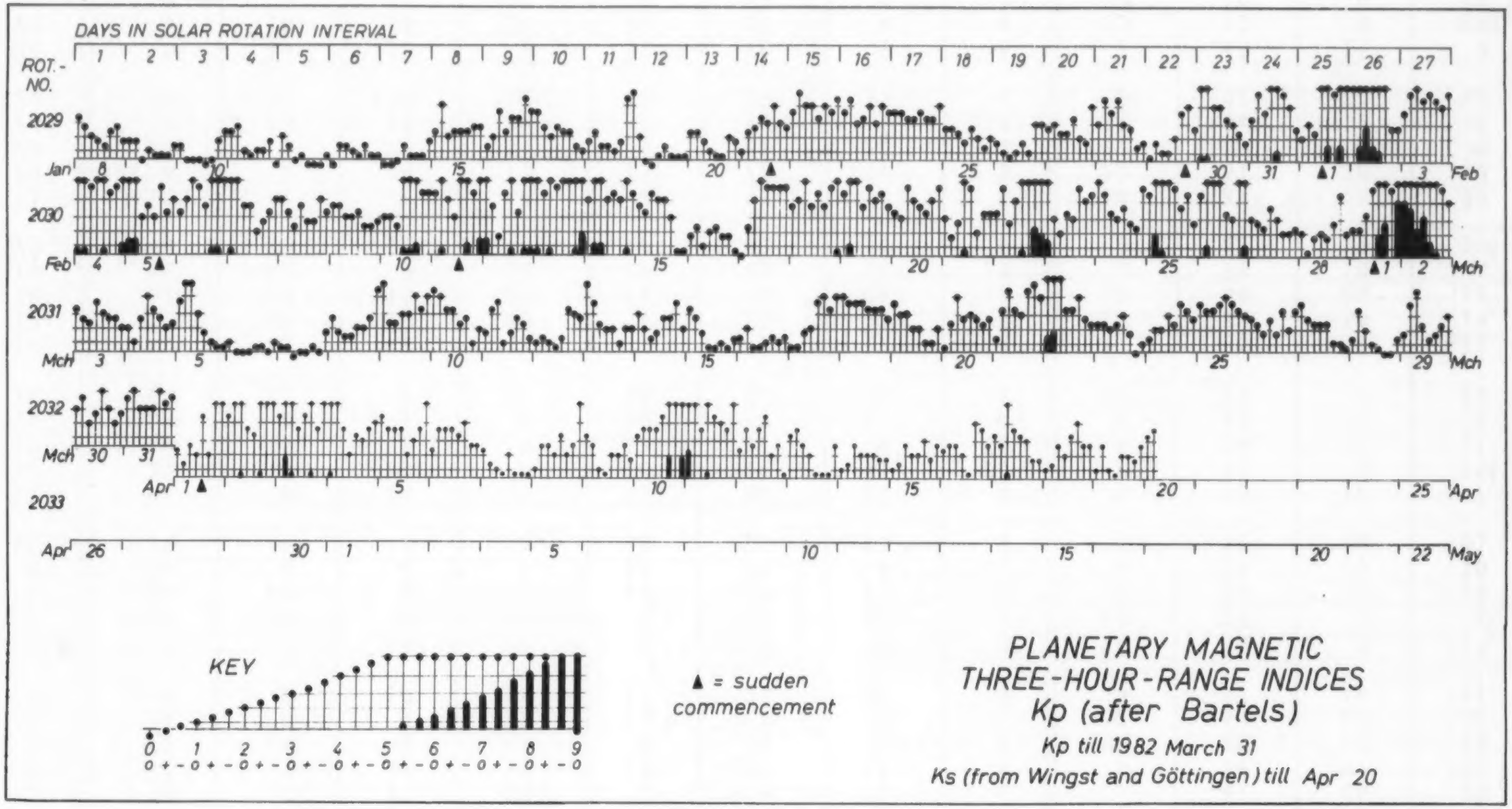
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2 nT) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap≤6 but one Kp≥30 or two Kp values≥3-"). An asterisk means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices Km, Kn, Ks, daily mean values Am, An, As (unit 1nT), and indices aa are prepared by M. Menvielle of the Institut de Physique du Globe, Paris, France. For aa indices daily north (N) and south (S) values, and half-daily antipodal mean (M) values are given. Quiet 24-hour and 48-hour intervals centered on 1200 UT are indicated for really quiet as C and for quiet but with some slightly disturbed three-hour intervals as K. The first hundred years series of aa is in IAGA Bulletin No.33, and complementary data are in IAGA Bulletin No.39.

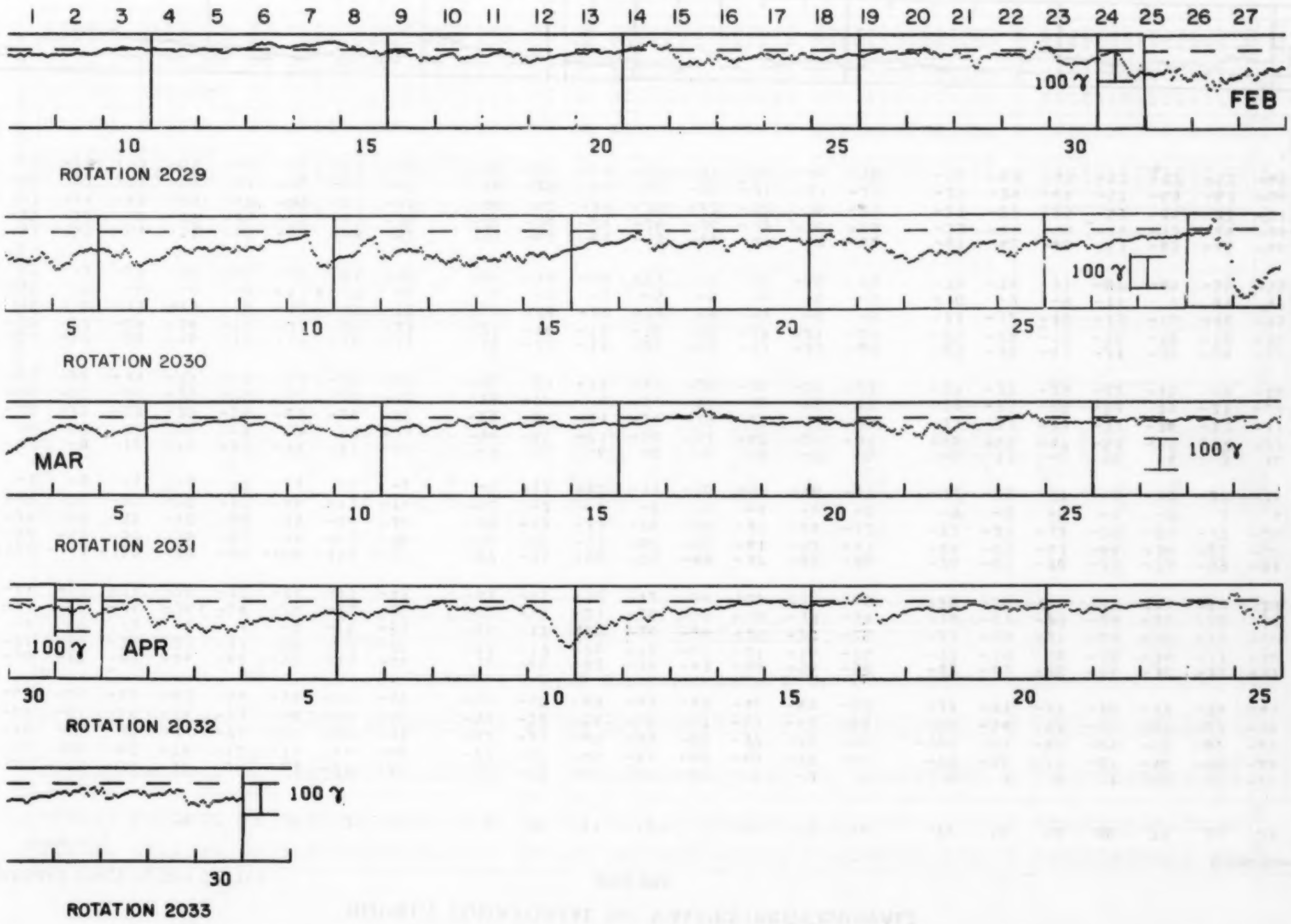
DAILY AVERAGE INDICES Ap

DAY	1981 MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	1982 JAN	FEB	MAR	APR
1	16	7	17	18	5	9	7	6	9	41	68	20
2	7	7	22	15	18	22	5	9	9	60	107	42
3	5	16	9	18	9	36	8	8	20	35	13	48
4	4	5	9	11	11	17	6	10	12	49	12	22
5	4	6	12	15	17	7	11	9	4	37	16	21
6	5	14	19	14	8	6	9	4	10	39	3	18
7	5	50	14	10	5	32	19	3	12	26	3	5
8	11	16	8	4	10	25	27	15	9	18	11	12
9	39	4	6	7	11	21	4	10	4	15	20	10
10	32	4	4	16	9	27	13	9	4	35	16	61
11	61	6	13	15	21	46	31	6	5	45	10	47
12	13	4	20	9	10	12	39	23	2	41	8	15
13	10	5	9	9	12	17	5	12	4	54	13	11
14	18	4	7	8	10	73	27	6	3	42	11	6
15	54	11	4	13	10	20	20	6	12	18	7	10
16	59	21	8	8	7	8	17	4	17	6	4	11
17	13	10	29	25	4	18	32	7	10	30	14	19
18	57	10	10	23	18	6	26	14	13	34	20	12
19	18	10	9	10	38	23	14	10	3	36	10	8
20	43	10	12	8	9	67	13	6	6	26	12	20
21	12	7	6	14	7	33	15	6	14	21	23	32
22	6	5	24	13	13	72	11	3	27	51	38	18
23	19	5	37	56	4	27	20	6	22	29	8	9
24	18	13	13	28	7	18	9	10	21	24	12	15
25	33	15	134	16	13	18	27	8	9	42	20	52
26	8	14	78	8	32	10	9	6	7	43	11	7
27	6	10	24	25	21	10	4	6	13	12	9	24
28	12	9	8	18	6	19	6	12	17	10	6	21
29	6	33	5	18	14	12	4	32	11		13	31
30	6	14	9	17	15	12	1	30	27		15	30
31	8		12	15		4		18	34		20	
MEAN	20	12	19	15	12	23	15	10	12	33	18	22

GEOMAGNETIC ACTIVITY INDICES



GEOMAGNETIC ACTIVITY INDICES
Hourly Equatorial Dst
by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

HOURLY EQUATORIAL DST VALUES (PROVISIONAL)

NASA/GODDARD SPACE FLIGHT CENTER

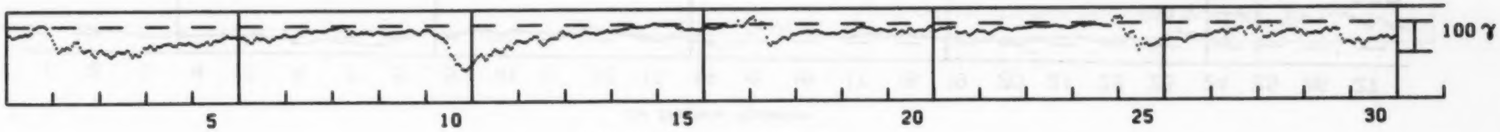
APRIL 1982

(Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	-29	-29	-37	-36	-34	-31	-28	-28	-27	-22	-28	-24	-19	-5	-3	0	4	3	4	1	-4	-19	-27	-41
2	-54	-68	-63	-78	-70	-74	-66	-68	-72	-60	-49	-49	-49	-66	-78	-84	-79	-76	-77	-87	-94	-98	-84	-77
3	-76	-84	-89	-88	-96	-101	-95	-91	-82	-81	-85	-83	-85	-77	-79	-90	-100	-91	-90	-95	-95	-82	-69	-69
4	-69	-61	-66	-74	-73	-64	-66	-64	-59	-58	-56	-57	-57	-63	-63	-64	-54	-54	-57	-57	-59	-53	-54	-58
5	-61	-65	-65	-63	-58	-58	-51	-49	-59	-56	-48	-45	-48	-46	-44	-39	-37	-31	-37	-38	-37	-36	-41	-42
6	-38	-37	-41	-46	-48	-55	-54	-44	-36	-40	-42	-39	-42	-46	-51	-50	-43	-42	-35	-36	-36	-33	-27	-28
7	-32	-34	-34	-33	-33	-28	-23	-20	-17	-17	-16	-18	-21	-21	-16	-16	-17	-18	-18	-18	-16	-11	-10	-10
8	-9	-7	-5	-2	1	-5	-15	-25	-26	-17	-20	-26	-26	-25	-20	-25	-23	-20	-27	-26	-30	-24	-20	-19
9	-23	-23	-26	-26	-24	-24	-22	-22	-22	-21	-21	-20	-20	-18	-14	-14	-16	-21	-23	-28	-29	-20	-14	-14
10	-13	-15	-21	-28	-32	-31	-37	-41	-43	-51	-56	-72	-94	-100	-111	-126	-125	-130	-143	-145	-148	-142	-135	-125
11	-121	-113	-105	-100	-94	-104	-114	-111	-97	-96	-86	-78	-84	-87	-88	-86	-76	-67	-70	-78	-73	-59	-51	-51
12	-52	-55	-57	-56	-52	-46	-45	-38	-38	-40	-53	-60	-66	-61	-52	-47	-44	-45	-43	-44	-34	-25	-20	-27
13	-31	-30	-35	-40	-40	-36	-36	-34	-30	-25	-23	-26	-28	-27	-28	-32	-32	-27	-27	-25	-21	-17	-24	-24
14	-20	-20	-22	-20	-17	-16	-13	-14	-12	-7	-7	-8	-9	-9	-8	-8	-9	-5	-5	-4	-1	2	1	0
15	-3	-3	-4	-4	-1	-2	-1	-2	-4	-10	-14	-11	-10	-17	-18	-17	-18	-15	-17	-19	-19	-20	-14	-13
16	-12	-8	-12	-14	-13	-15	-11	-10	-9	-5	-6	-8	-8	-7	-7	-5	-5	11	-6	-9	-4	3	10	17
17	20	25	12	-1	-1	4	3	-13	-44	-65	-71	-60	-62	-62	-56	-51	-45	-44	-47	-51	-45	-37	-33	-36
18	-32	-29	-28	-28	-26	-25	-26	-27	-29	-24	-21	-24	-29	-29	-33	-33	-33	-33	-31	-31	-34	-33	-31	-25
19	-25	-27	-30	-28	-25	-22	-20	-12	-12	-10	-9	-11	-14	-13	-16	-17	-22	-23	-20	-18	-19	-21	-23	-26
20	-25	-24	-19	-20	-34	-29	-25	-25	-32	-28	-18	-17	-24	-28	-24	-23	-23	-22	-25	-22	-15	-9	-10	-16
21	-26	-23	-20	-16	-19	-17	-16	-11	-19	-13	-13	-29	-33	-33	-32	-29	-29	-38	-41	-37	-32	-26	-22	-28
22	-28	-27	-29	-34	-37	-32	-28	-23	-21	-16	-16	-16	-19	-21	-21	-23	-25	-20	-19	-18	-19	-18	-16	-16
23	-15	-14	-13	-11	-10	-12	-13	-12	-11	-13	-12	-12	-9	-9	-8	-8	-11	-12	-10	-13	-16	-16	-15	-12
24	-11	-9	-6	-4	-8	-11	-7	-6	-6	-5	-4	-5	-5	-6	-6	-9	-10	-9	-9	-11	7	19	17	17
25	22	13	-23	-38	-44	-34	-31	-30	-47	-76	-90	-71	-53	-70	-68	-76	-75	-74	-71	-67	-64	-55	-55	-55
26	-57	-55	-51	-52	-53	-53	-53	-52	-55	-62	-63	-55	-49	-47	-47	-44	-41	-42	-43	-43	-43	-45	-40	-39
27	-35	-30	-32	-33	-28	-25	-31	-39	-34	-26	-24	-26	-26	-19	-16	-18	-33	-41	-19	-16	-13	-24	-33	-25
28	-17	-31	-49	-49	-50	-47	-37	-41	-46	-42	-38	-36	-32	-32	-26	-27	-27	-27	-25	-33	-36	-27	-31	-39
29	-45	-37	-37	-37	-37	-32	-36	-37	-36	-29	-24	-21	-29	-31	-21	-22	-25	-24	-44	-57	-69	-63	-64	-65
30	-70	-73	-59	-55	-62	-73	-75	-65	-56	-56	-57	-57	-57	-54	-48	-46	-52	-48	-45	-52	-57	-52	-49	-48

(Time-UT)

APR



PRINCIPAL MAGNETIC STORMS

APRIL 1982

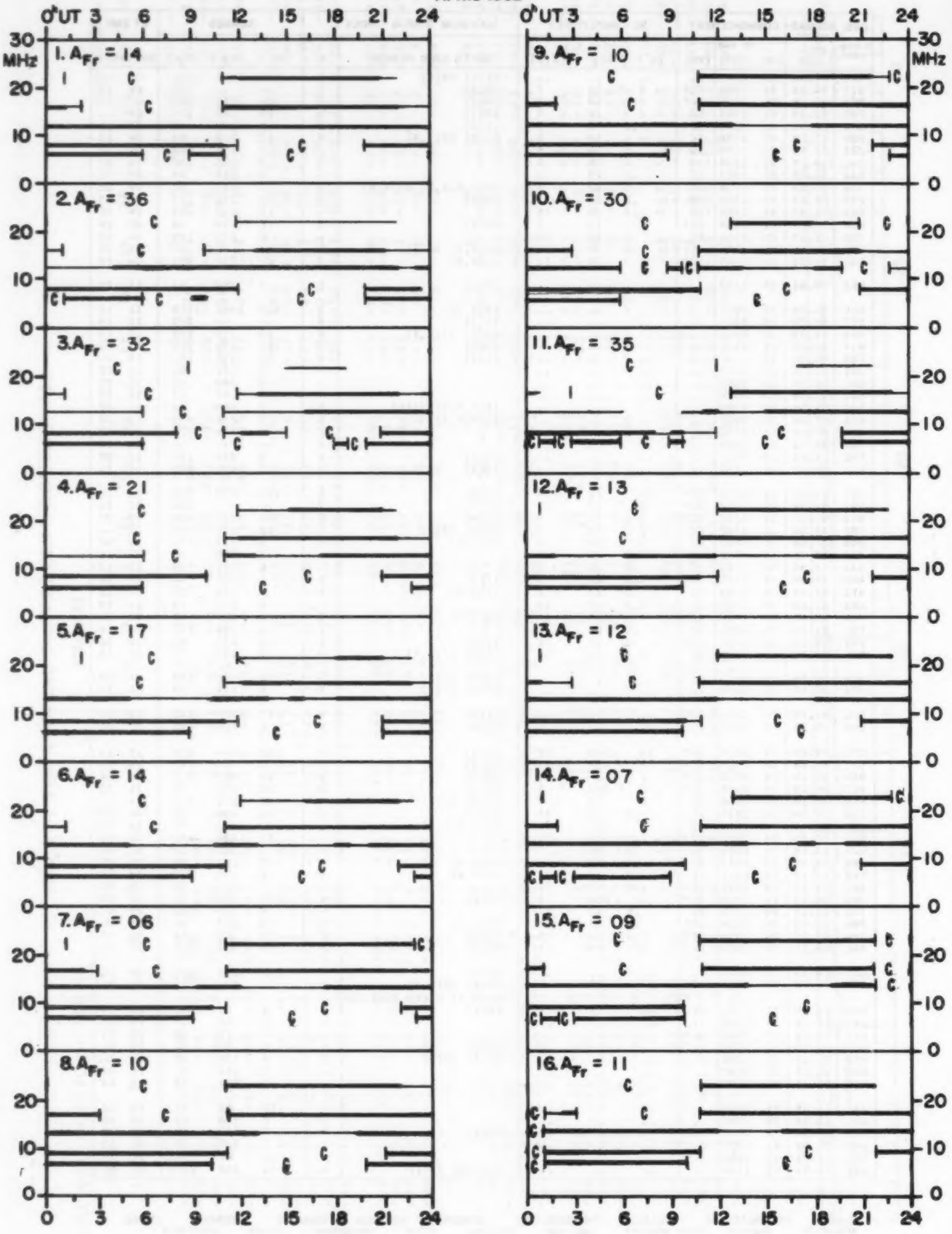
OBS. 3 letter code	GEOMAGNETIC LATITUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY (3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
COL	64.6N	01	20--	..	..	..	..	02(6) 06(3)	7	424	1690	1100	06	22
SIT	60.0N	01	1306	SC*	- 8	* 21	7	03(3)	7	--	--	700	04	10
NEW	55.1N	01	1305	SC*	4	13	3	03(3)	7	80	213	385	07	12
FRD	49.6N	01	1305	SC	- 2	16	3	03(3)	6	35	145	117	04	--
SJG	29.9N	01	1305	SC	.5	5	1	01(8)	6	9	175	49	04	10
HON	21.1N	01	1306	SC	--	14	5	01(8) 02(1,4)	4	12	118	48	02	13
JAI	17.3N	01	1304	SC	- .6	24	- 5		-	7	150	48	04	02
SHL	14.7N	01	1304	SC	- .4	28	5		-	7	185	40	04	02
UJJ	13.5N	01	1304	SC	- .3	29	- 5		-	7	154	45	04	02
ABG	09.5N	01	1304	SC	- .5	23	- 5	02(1,5,6,8) 03(4,6)	5	6	137	53	04	02
HYB	07.6N	01	1305	SC	- .2	23	- 1	02(6)	6	6	172	31	03	23
ANN	01.5N	01	1304	SC	- .7	28	16		-	5	213	65	04	02
HUA	00.6S	01	1304	SC*	1	12	2	03(6)	6	7	274	58	03	24
TRD	01.1S	01	1304	SC	.1	20	30		-	4	273	108	04	02
PMG	18.6S	01	1305	SC	.5	24	22	02(4,5) 03(5)	5	7	120	50	04	00
KGL	56.5S	01	1304	SC*	3	16	11	02(6,8)	7	32	292	203	04	10
HUA	00.6S	09	1756	..	..	..	..	10(7)	6	7	350	51	11	21
COL	64.6N	10	00--	..	..	..	..	10(5,6)	7	412	1460	1010	12	16
SIT	60.0N	10	03--	..	..	..	..	11(3)	8	--	--	820	12	14
NEW	55.1N	10	00..	..	..	..	..	10(5) 11(2,4)	6	49	318	522	12	13
WIT	54.2N	10	13--	..	..	..	..	10(8)	7	50	195	180	11	22
FRD	49.6N	10	----	..	..	..	..	11(3)	6	34	196	161	14	--
JAI	17.3N	10	0300	..	..	..	..		-	8	192	62	11	22
SHL	14.7N	10	0300	..	..	..	..		-	9	224	51	11	22
UJJ	13.5N	10	0300	..	..	..	..		-	7	197	51	11	22
ABG	09.5N	10	0300	..	..	..	..	10(5,4,8) 11(6)	5	8	209	52	11	22
HYB	07.6N	10	0000	..	..	..	..	10(5,6,7)	6	7	226	32	11	22
ANN	01.5N	10	0300	..	..	..	..		-	6	256	77	11	22
TRD	01.1S	10	0300	..	..	..	..		-	--	--	--	11	22
PMG	18.6S	10	00..	..	..	..	..	10(5)	6	8	210	120	12	00
KGL	56.5S	10	12--	..	..	..	..	10(8)	9	177	1420	626	12	23
COL	64.6N	16	1702	SC*	-20	76	-19	17(4)	6	123	730	630	17	19
SIT	60.0N	16	1704	SC*	12	* 17	-13	* 17(4)	7	--	--	300	17	23
NEW	55.1N	16	1701	SC*	8	22	3	17(4)	6	28	265	222	19	03
FRD	49.6N	16	1702	SC	- 2	22	3	21(5) 22(2)	5	22	105	62	23	--
HON	21.1N	16	1703	SC	3	19	3	17(3,4)	4	9	133	40	18	02
JAI	17.3N	16	1702	SC	- 1.3	30	- 8		-	8	150	48	17	18
UJJ	13.5N	16	1702	SC	- .9	33	- 8		-	6	151	34	17	18
ABG	09.5N	16	1702	SC	- 1.1	27	- 9	17(3)	6	6	156	44	17	18
HYB	07.6N	16	1703	SC	- .6*	27	- 1	17(3,4)	6	5	173	25	17	23
ANN	01.5N	16	1702	SC	- 1.4	32	19		-	5	231	76	17	18
HUA	00.6S	16	1702	SC*	4	146	-13	16(6,7)	6	8	359	55	17	23
TRD	01.1S	16	1702	SC	- .5	26	32		-	3	286	147	17	18
PMG	18.6S	16	1701	SC*	- .6*	22	16	17(3)	6	6	210	80	18	00
KGL	56.5S	16	1702	SC	3	33	19	16(8) 17(4,5)	4	23	159	74	17	18
NEW	55.1N	19	13..	..	..	..	..	20(3) 21(3)	5	38	142	143	24	09
HYB	07.6N	19	2100	..	..	..	..	20(3) 22(2)	4	7	114	44	22	10
COL	64.6N	20	23--	..	..	..	..	21(4)	6	112	1030	370	22	08
HUA	00.6S	20	2030	..	..	..	..	21(6)	6	6	238	41	22	05
COL	64.6N	24	2016	SC*	54	-148	72	25(3)	7	242	1470	830	25	24
SIT	60.0N	24	2017	SC*	32	* -51	*-33	* 25(4)	7	--	--	790	25	23
NEW	55.1N	24	2016	SC*	7	35	6	25(4)	8	49	560	333	26	04
WIT	54.2N	24	2016	SC*	- 3	* 100	* 5	25(3)	6	30	235	55	25	20
FRD	49.6N	24	2016	SC	- 3	78	- 6	24(7) 25(4)	6	26	173	116	--	--
SJG	29.9N	24	2016	SC	- .5	20	14	25(1)	6	13	100	26	00	26
HON	21.1N	24	2018	SC	2	31	13	25(1,2,3,4)	5	10	171	37	26	00
JAI	17.3N	24	2015	SC	- 1.3	44	-10		-	11	186	52	26	01
UJJ	13.5N	24	2015	SC	- .6	48	- 9		-	9	186	54	26	01
ABG	09.5N	24	2015	SC	- .9	38	- 6	25(1,3)	6	9	181	65	26	01
HYB	07.6N	24	2016	SC	- .3	39	- 2	25(3,4)	6	8	192	40	26	02
ANN	01.5N	24	2015	SC	- 1.4	43	22		-	7	265	78	26	01
HUA	00.6S	24	2016	SC*	2	139	14	25(5)	6	8	302	52	25	24
TRD	01.1S	24	2015	SC	.3	37	47		-	4	324	183	26	01
PMG	18.6S	24	2016	SC*	.6*	28	24	25(2,3)	6	6	260	80	26	00
GNA	43.2S	24	2016	SC*	7.0*	24	35	* 25(4)	6	19	160	160	25	16
KGL	56.5S	24	2016	SC	9	26	18	25(4)	6	58	278	205	25	21
COL	64.6N	27	15--	..	..	..	..	02(7)	7	231	1570	1020	04	18
NEW	55.1N	27	1751	SC*	13	30	6	29(8) 30(1,3)	5	37	235	241	06	04
								01(1,3) 02(2) 03(2,6)						
HON	21.1N	27	1751	SC	--	3	3	28(1)	4	6	67	21	29	14
JAI	17.3N	27	0500	..	..	..	..		-	7	64	37	28	04
UJJ	13.5N	27	0500	..	..	..	..		-	6	77	38	28	04
ABG	09.5N	27	0500	..	..	..	..	28(1)	5	6	92	47	28	04
HYB	07.6N	27	1200	..	..	..	..	27(6) 29(7)	5	8	118	35	30	18
ANN	01.5N	27	0500	..	..	..	..		-	5	157	81	28	04
TRD	01.1S	27	0500	..	..	..	..		-	4	211	78	28	04
JAI	17.3N	29	0300	..	..	..	..		-	10	88	57	30	12
UJJ	13.5N	29	0300	..	..	..	..		-	8	104	49	30	12
ABG	09.5N	29	0300	..	..	..	..	30(2)	5	9	110	45	30	12
ANN	01.5N	29	0300	..	..	..	..		-	7	159	53	30	12
TRD	01.1S	29	0300	..	..	..	..		-	--	--	--	30	12
KGL	56.5S	29	1730	..	..	..	..	29(7,8) 30(1)	6	41	338	217	01	05

REPORTS WERE RECEIVED FROM THE FOLLOWING OBSERVATORIES:

ALIBAG ANNAMALAINAGAR COLLEGE FREDERICKSBURG GNANGARA HONOLULU HUANCAYO HYDERABAD JAIPUR
KERGUELEN NEWPORT PORT MORESBY SAN JUAN SHILLONG SITKA TRIVANDRUM UJJAIN WITTEVEEN

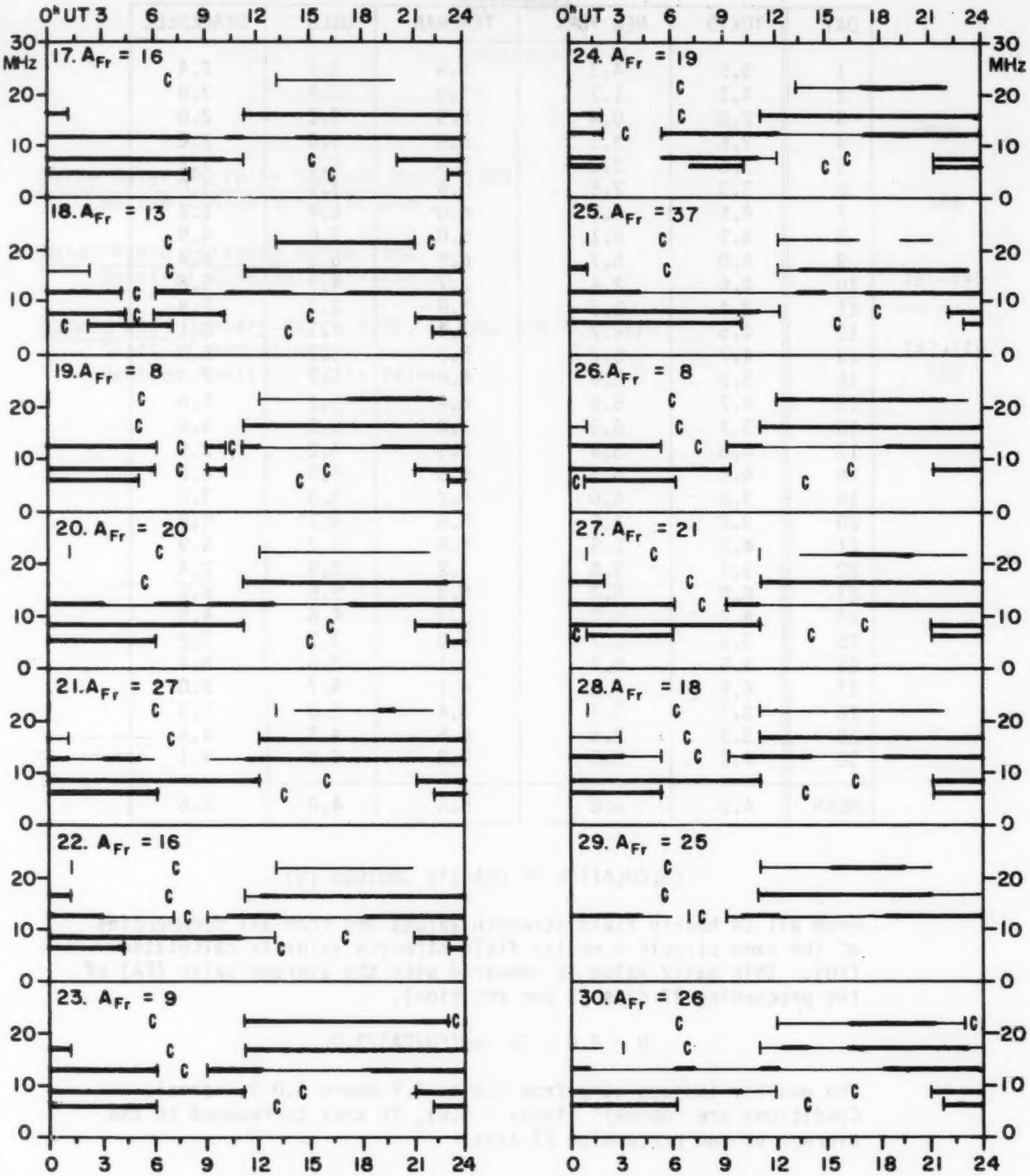
TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

APRIL 1982



TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

APRIL 1982



Field strengths from five frequencies, 6.4, 8.6, 13.0, 17.0 and 22.5 MHz, observed on a Norddeich-New York circuit are represented above. Heavy solid lines represent field strengths $\geq$ -12 dB above 1 μV/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μV/m and -40 dB above 1 μV/m are represented by the fine line.

RADIO PROPAGATION QUALITY INDICES

APRIL 1982

DAY	TOKYO	NEW YORK	TEHERAN	OSLO	BRACKNELL
1	5.5	4.3	5.9	3.4	2.4
2	4.1	1.7	5.5	3.4	2.8
3	2.8	0.4	5.5	3.2	2.0
4	2.6	3.1	5.6	3.0	2.8
5	3.6	2.3	5.9	4.2	3.1
6	3.3	2.5	5.6	3.9	4.0
7	4.5	6.7	6.0	6.4	5.2
8	4.9	6.1	6.0	5.0	4.9
9	5.0	5.7	6.0	6.6	6.4
10	4.6	2.4	2.7	4.3	5.8
11	2.4	2.1	5.8	3.3	2.9
12	4.5	4.7	7.4	7.1	5.1
13	4.7	6.2	5.7	5.1	5.0
14	5.3	5.6	6.4	5.2	7.3
15	5.7	5.6	6.4	5.1	5.6
16	5.4	6.3	3.0	5.2	5.6
17	4.8	3.4	1.5	4.2	2.9
18	5.8	6.1	6.5	8.5	8.0
19	3.8	4.0	6.2	3.3	3.2
20	3.8	3.5	6.5	4.1	4.0
21	4.0	2.5	5.9	5.2	6.9
22	3.7	3.5	3.2	3.9	2.4
23	6.0	6.0	6.3	5.6	6.2
24	4.7	5.0	3.3	4.6	4.5
25	3.1	2.2	6.0	3.7	3.2
26	4.5	5.7	6.1	8.6	8.4
27	4.6	4.2	6.1	5.7	6.0
28	3.7	3.7	3.4	3.5	3.3
29	3.3	2.5	6.5	4.3	4.4
30	4.2	3.0	6.8	4.7	4.1
MEAN	4.3	4.0	5.5	4.8	4.6

CALCULATION OF QUALITY INDICES (Q)

From all 24 hourly field strength values and from all frequencies of the same circuit a median field strength value is calculated (FD). This daily value is compared with the average value (FA) of the preceeding 27 days (1 sun rotation).

$$Q = 6.0 + 20 \log(FD/FA)/3.0$$

The quality indices vary from 0.0 to 9.9 where 6.0 is normal. Conditions are "normal" (index = 6.0), if they correspond to the average of the preceeding 27 days.

Scale for Quality Indices

0.0 - 1.0 = very poor
1.1 - 3.0 = poor
3.1 - 5.0 = fair
5.1 - 7.0 - normal
7.1 - 9.0 = good
9.1 - 9.9 = very good

LATE DATA

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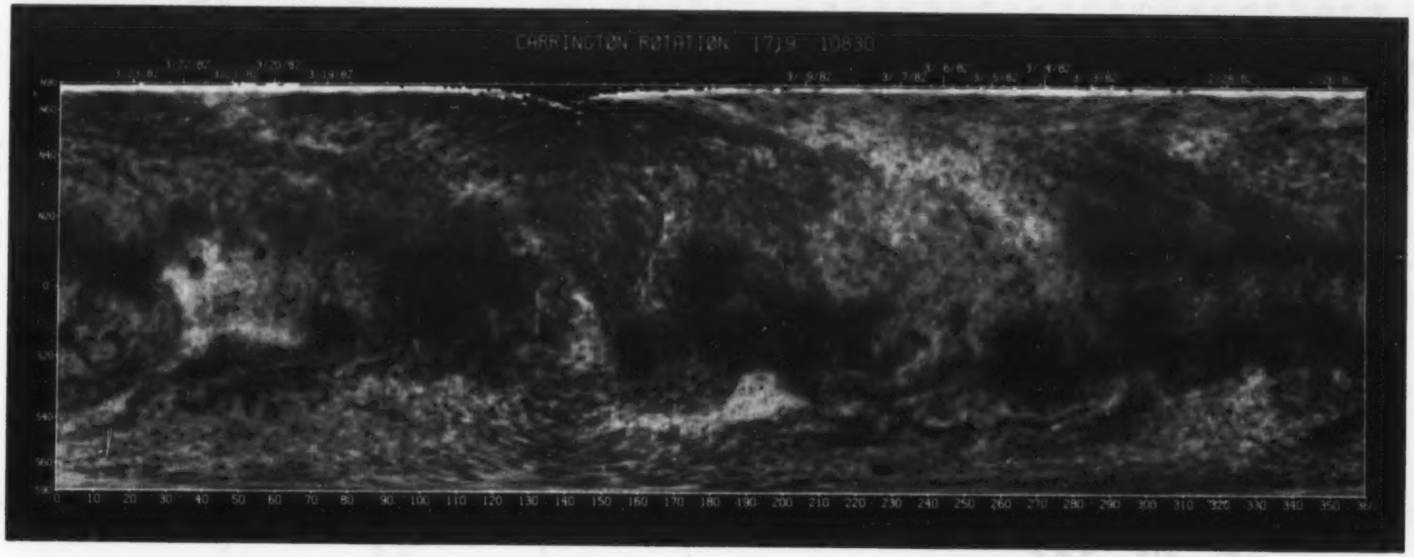
HELIUM 10830Å SYNOPTIC MAPS
CARRINGTON ROTATION 1719

KITT PEAK NATIONAL OBSERVATORY



SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

MARCH 1982

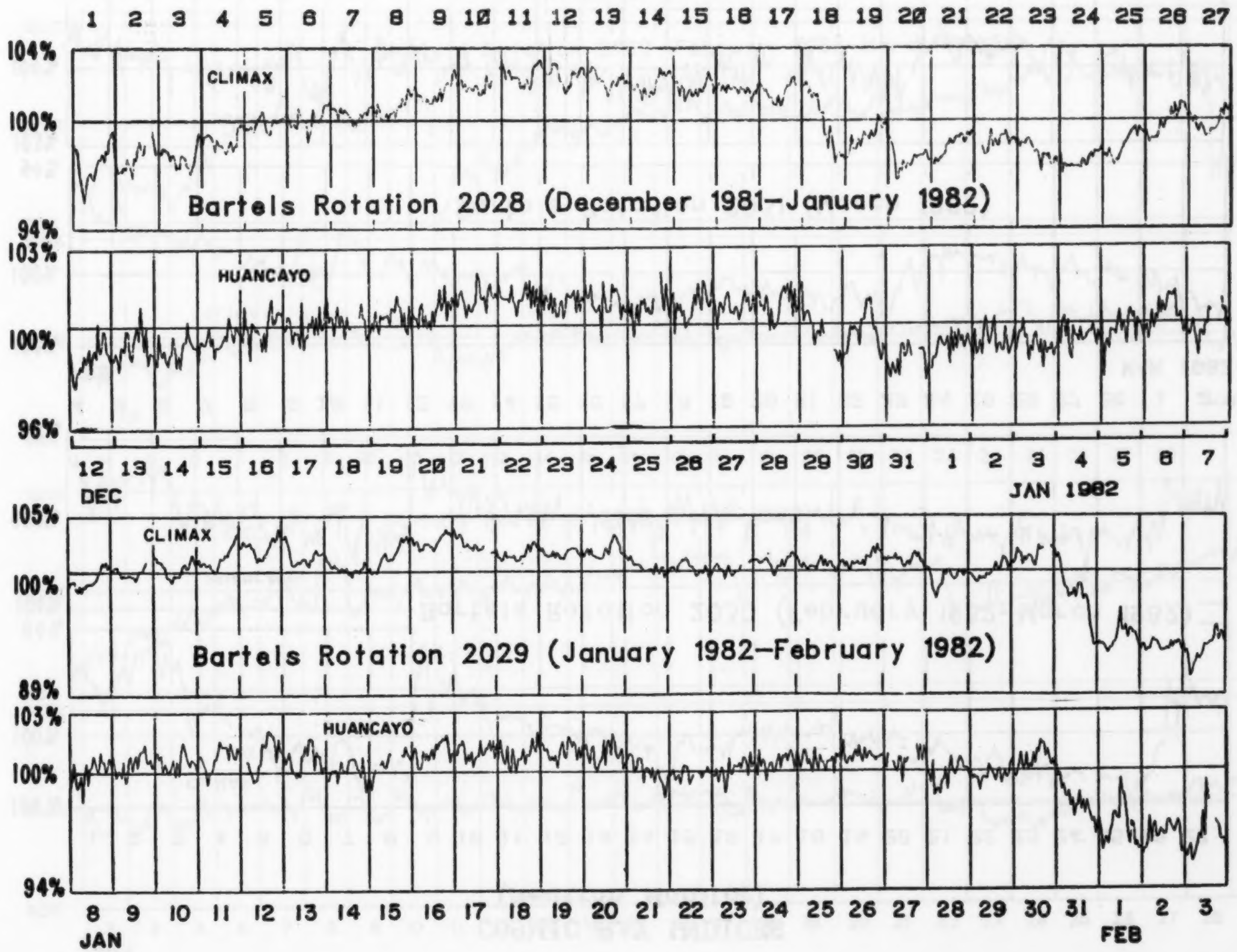
DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
10	0645	1630	BLEN	0739.2	0751	1	0739.2	0751	1				I
			BLEN				0802.9	0805.6	3				IIIGG
			BLEN				0816.0	0818.7	2				IIIG
			BLEN				0831.6	0832.9	1				IIIG
			BLEN	1119.0	1119.1	1	1119.0	1119.1	1				IIIB
			BLEN	1130.3	1150.3	1	1130.3	1150.8	1				IIIG
			BLEN				1220.6	1256.1	2				IIIGG
			BLEN				1329.9	1335.2	2				IIIG
			BLEN				1518.6	1519.0	1				III
11	0645	1630	BLEN				0740.0	1630 D	1				I
			BLEN				0829.6	0834.8	2				IIIG
12	0640	1630	BLEN										
			BLEN				0818.6	0820.8	2				III
			BLEN				0820.0	1630 D	1				I
			BLEN				1140.5	1141.2	2				III
13	0730	1700	BLEN				0730 D	1630 D	1				I
			BLEN				0906.6	0906.8	1				III
			BLEN	1253.5	1255.1	2							DCIM
			BLEN	1254.5	1255.1	2							U
14	0630	1700	BLEN				0630 E	1700 D	1				I
			BLEN	0813.8	0813.8	1							III
			BLEN	1104.1	1108.8	2							DCIM
			BLEN				1108.3	1108.5	3				U
			BLEN	1250.5	1250.6	1							DCIM
15	0630	1700	BLEN				0630 E	1700 D					I,DC
			BLEN				0657.3	0657.8	2				IIIG
			BLEN	1543.5	1543.8	2							DCIM
16	0630	1700	BLEN				0630 E	1700 D	2				I,DC
			BLEN				0645.3	0645.5	2				III
			BLEN				0723.1	0723.8	2				IIIG
			BLEN				0741.7	0741.8	2				III
			BLEN				1056.2	1056.7	2				IIIG
			BLEN				1115.1	1115.2	2				U
			BLEN				1154.8	1155.1	2				IIIG
			BLEN				1449.8	1449.8	2				III
17	0600	0700	BLEN				0600 E	0700 D	2				I
25	1000	1655	BLEN				1000 E	1655	2				I
			BLEN	1004.5	1004.7	2							III,U
			BLEN				1013.6	1013.7	2				III
			BLEN				1131.2	1135.0	2				IIIG
			BLEN				1205.3	1215.0	2				IIIG
			BLEN				1625.8	1629.0	3				III,V
			BLEN	1627.2	1628.8	1							DCIM
26	0600	1650	BLEN				0600 E	1650 D	2				I,DC
			BLEN				0600.1	0600.3	1				III
			BLEN				0702.7	0707.5	1				III,RS
			BLEN				0915.6	0916.8	1				III
			BLEN	0931.6	1002.8		0931.6	1002.8					IV
			BLEN	1251.8	1251.9	1							DCIM
			BLEN				1313.6	1313.8	2				III
			BLEN				1456.4	1500.8	3				IIIG
			BLEN				1611.6	1615.2	2				III
			BLEN	1614.8	1615.2	2							III
			BLEN				1641.6	1642.4	2				IIIG
27	0600	1655	BLEN				0600 E	1655 D	2				I,DC
			BLEN				1008.9	1014.4	2				III,V
			BLEN	1008.9	1110.2	1							DCIM
			BLEN				1027.8	1042.6	2				IIIGG
			BLEN				1124.2	1138.6	2				IIIG
			BLEN				1216.2	1217.3	2				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

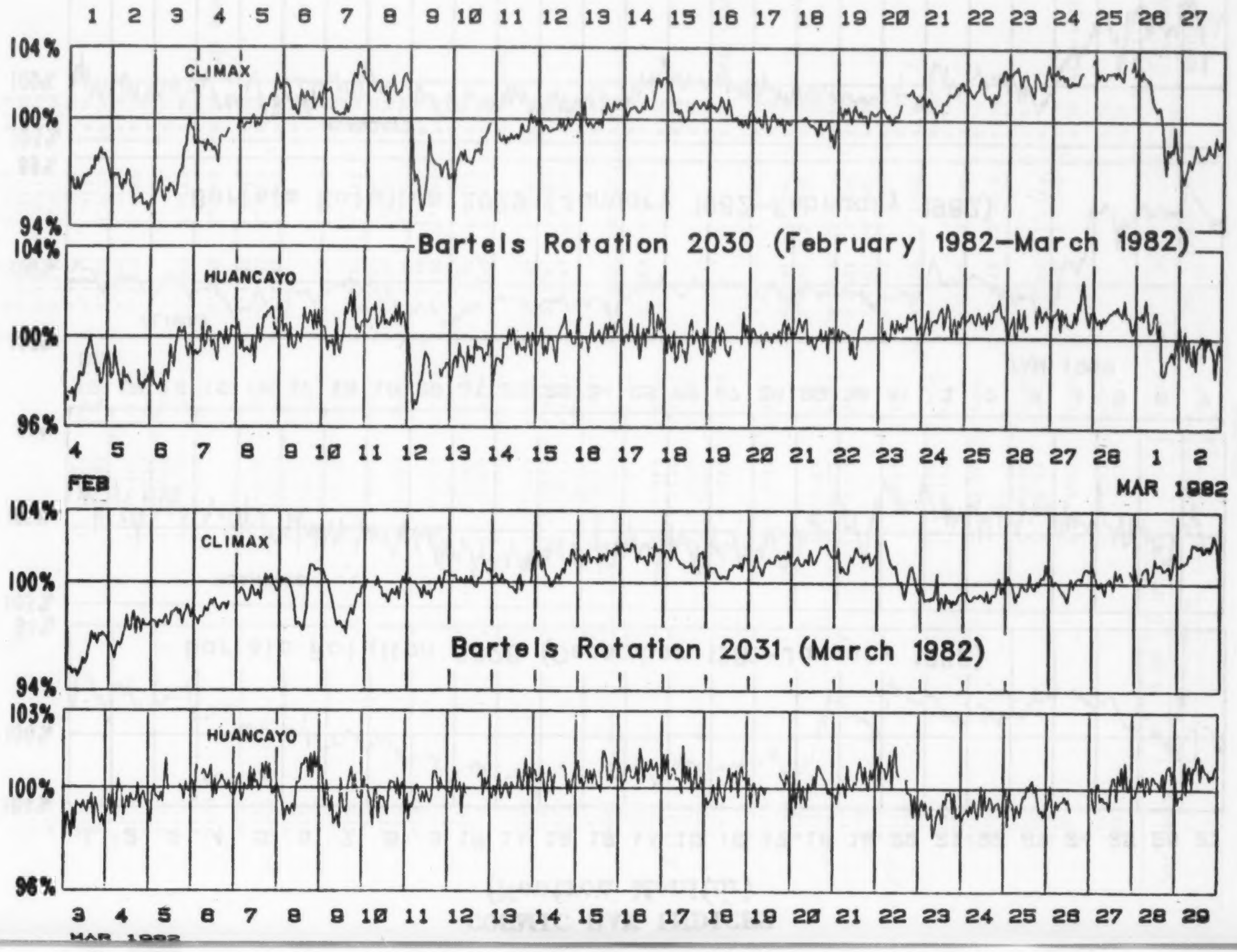
MARCH 1982

DAY	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
	1982 MONTH 03												
27			BLEN				1240.2	1243.7	2				IIIG
			BLEN				1409.1	1411.3	2				III
28	0555	1655	BLEN				0555 E	1655 D	2				I,DC
			BLEN	0556.7	0900.2	2							DCIM
			BLEN	0617.1	0617.9	1	0617.0	0618.8	2				III
			BLEN				0633.9	0645.9	2				III
			BLEN				0704.5	0721.3	2				III
			BLEN	0705.1	0722.1	1							DCIM
			BLEN				0806.7	0806.8	2				III,U
			BLEN	0840.2	0841.7	2							DCIM
			BLEN				0900.1	0910.0	2				III
			BLEN				0947.6	0949.5	2				III
			BLEN	0947.6	0948.4	2							DCIM
			BLEN				1001.8	1015.8					IIIGG,V,U
			BLEN	1003.1	1009.7	2							DCIM
			BLEN	1034.6	1035.3	2							DCIM
			BLEN	1250.0	1250.8	1	1250.6	1250.8	3				III
			BLEN	1306.1	1328.8	2	1306.1	1330.3	2				IIIGG,C
			BLEN				1401.9	1409.8	2				III
			BLEN	1407.4	1409.8	2							DCIM
			BLEN	1421.1	1421.3	2							DCIM
			BLEN				1422.2	1631.8	3				IIIGG
			BLEN	1516.7	1516.9	2							DCIM
29	0555	1700	BLEN				0555 E	1700 D					I,DC
			BLEN				0653.4	0655.2	2				III
			BLEN				0730.2	0732.9	2				III
			BLEN				0753.1	0833.4	3				IIIGG,V
			BLEN				0910.0	0931.3	2				III
			BLEN	0930.3	0931.2	2							DCIM
			BLEN				1009.9	1041.9	3				III
			BLEN	1038.3	1043.0	2							DCIM
			BLEN				1104.3	1139.8	2				III
			BLEN				1220.1	1258.9	2				III
			BLEN	1428.5	1439.7	2	1427.6	1439.7	2				IIIG
			BLEN	1628.6	1628.6	2	1628.6	1635.9	1				III
			BLEN	1655.4	1656.7	1	1652.8	1656.7	2				IIIG
30	0537	1700	BLEN				0537.6	0544.7	3				II
			BLEN	0544 E	0920	3	0544 E	0920	3				IV P,Z
			BLEN	0548.4	0549.3	3	0548.3	0549.3	3				III
			BLEN	0703	1700 D	2	0703	1700 D	2				I,DC
			BLEN	0816.7	0817.5	1	0816.7	0820.7	2				III
			BLEN	0942.1	0946.8	2							DCIM
			BLEN	1011.8	1017.8	3	1012.3	1017.8	2				III
			BLEN	1033.7	1036.6	1							DCIM
			BLEN	1036.3	1045.3	2	1036.3	1045.3	2				III
			BLEN	1120.2	1121.3	2							DCIM
			BLEN				1133.4	1133.5	2				III
			BLEN	1141.1	1147.9	3	1142.2	1147.8	3				DCIM,III
			BLEN				1217.9	1229.4	2				IIIG
			BLEN				1310.6	1310.6	2				IIIB
			BLEN	1421.0	1426.8	2	1421.0	1421.1	1				DCIM,III
			BLEN	1505.2	1505.6	2	1503.8	1506.3	3				III
			BLEN	1505.4	1511.7	2							DCIM
31	0549	1322	BLEN	0553.3	0555.0	2							DCIM
			BLEN				0700.7	0700.7	2				IIIB
			BLEN	0735.2	0746.3	1	0746.1	0746.3	2				III
			BLEN				0800.1	0809.4	2				IIIG
			BLEN				0834.3	0834.4	2				IIIB
			BLEN	0913.2	0913.7	1	0913.3	0914.0	3				IIIG
			BLEN	0959.8	1001.5	2							III,RS
			BLEN	1029.9	1046.0	3	1045.8	1046.2	3				IIIG
			BLEN	1116.7	1117.6	3	1116.2	1117.5	3				IIIG
			BLEN	1117.0	1117.6	1							DCIM
			BLEN	1137.7	1137.8	2							DCIM
			BLEN	1143.8	1143.9	2							IIIB
			BLEN	1244.2	1244.5	3							UNCLF
			BLEN	1306.3	1306.4	3							III

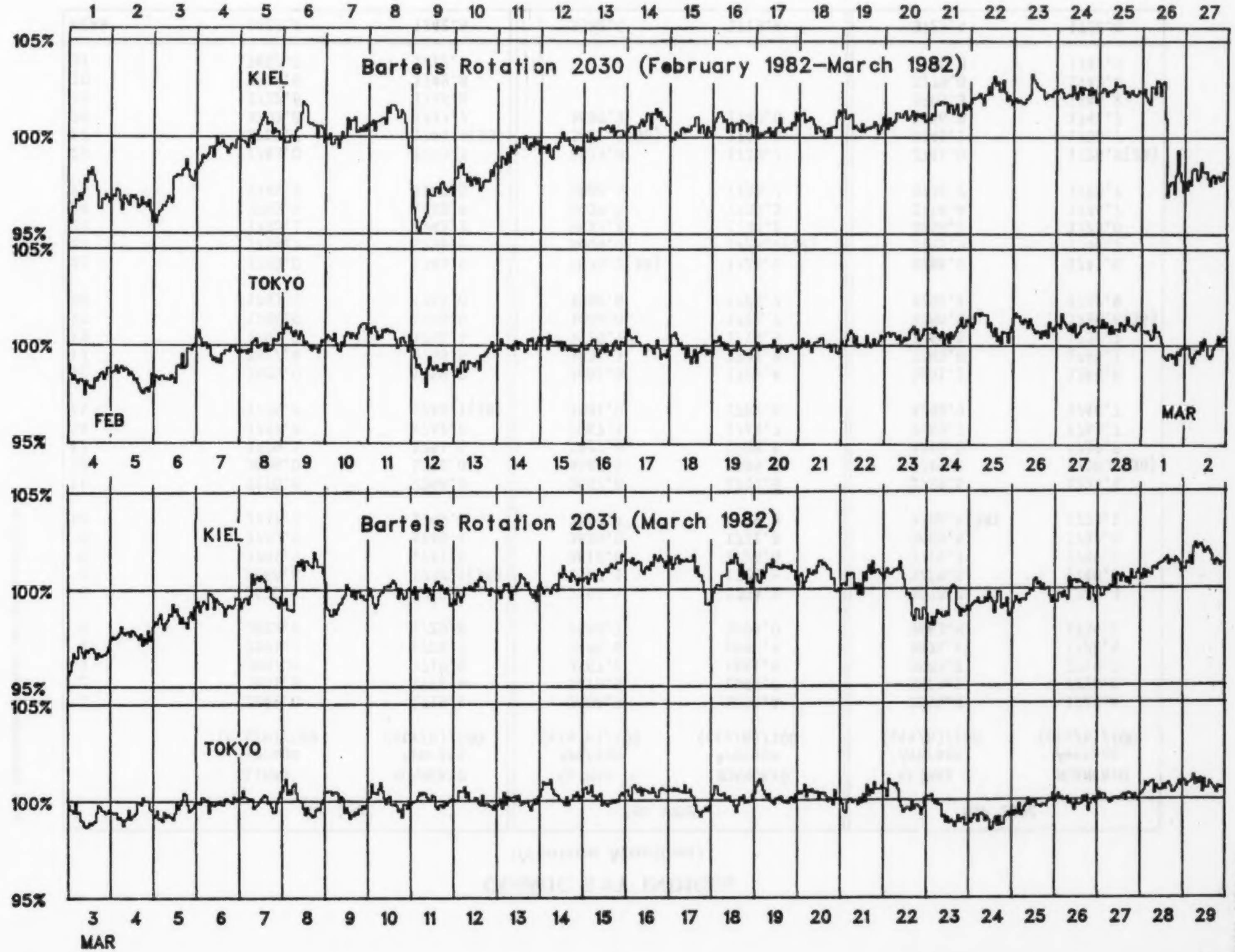
COSMIC RAY INDICES
(Neutron Monitor)



COSMIC RAY INDICES
(Neutron Monitor)



COSMIC RAY INDICES
(Neutron Monitor)



COSMIC RAY INDICES

(Neutron Monitors)

	Jan 1982		Feb 1982		Mar 1982	
	CLIMAX Average (cts/h)/100	HUANCAYO Average (cts/h)/100	CLIMAX Average (cts/h)/100	HUANCAYO Average (cts/h)/100	CLIMAX Average (cts/h)/100	HUANCAYO Average (cts/h)/100
1	3649.0	1719.9	3504.9	1690.4	3595.3	1724.4
2	3631.8	1722.5	3475.5	1684.0	3523.1	1716.2
3	3607.7	1719.9	3467.2	1681.6	3587.3	1719.3
4	3591.1	1726.3	3486.6	1695.4	3631.5	1728.4
5	3623.9	1729.8	3448.3	1694.0	3663.8	1734.1
6	3670.4	1740.4	3491.1	1704.8	3678.2	1741.3
7	3668.8	1732.1(38)	3547.1	1720.5	3720.5	1740.5
8	3701.5	1741.5	3612.8	1726.0	3715.4	1739.3
9	3723.5	1748.4	3635.0	1731.3	3689.5	1732.3
10	3737.2	1749.7	3643.7	1729.9	3720.9(38)	1733.1
11	3770.8	1754.0	3657.6	1737.5	3732.5	1733.5
12	3808.0	1756.0	3487.5	1695.8	3749.2	1738.4(38)
13	3779.3	1751.5	3527.3	1708.5	3743.0	1739.0
14	3737.8	1742.2	3567.1	1714.7	3769.3	1743.7
15	3775.0	1748.1(36)	3581.0	1722.5	3793.9	1746.7
16	3525.0	1758.0	3601.9	1725.4	3801.2	1748.9
17	3817.4	1758.5	3631.3	1727.8	3783.8	1745.1
18	3783.2	1755.4	3620.7	1719.5	3765.5	1737.7
19	3786.5	1758.8	3606.0	1721.7	3780.5	1738.6(36)
20	3793.3	1756.0	3588.6	1725.7	3792.1	1737.9
21	3740.0	1740.9	3579.2(38)	1726.0	3786.8	1741.5
22	3734.7	1738.5	3609.0	1723.8(32)	3755.9	1744.3
23	3730.1	1742.3	3623.2	1732.2	3708.2	1723.0
24	3753.5	1748.4	3639.0	1736.3	3714.4	1724.7
25	3745.9	1749.3	3660.5	1739.7	3736.2	1728.7
26	3763.0	1753.3	3679.8	1736.7	3741.0	1726.9(28)
27	3762.7	1749.9(38)	3681.1(38)	1741.8	3745.1	1736.7
28	3703.8	1737.7	3689.3	1740.0	3766.8	1741.7
29	3722.5	1736.8			3803.3	1746.2
30	3774.6	1749.8			3779.0	1743.6
31	3652.2	1712.7			3770.8	1741.3
MEAN	3727.9	1742.8	3582.8	1719.4	3727.4	1736.0

For less than 24-hour coverage, parentheses enclose the number of hours for which data are available. For Climax and Huancayo, parentheses enclose the number of section hours whenever the sum of both sections falls below 40 hours.

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